Novell nabs SilverStream Novell buys its way into Web services via $212 million acquisition. PAGE 12.

IBM extends WebSphere New offering to connect e-commerce, legacy apps at midsize companies. PAGE 12.

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June 17, 2002 ■ Volume 19, Number 24

Buyer's Guide:
802.11a becomes a contender

Page 51 Newest wireless LAN technology offers higher speeds, more channels and less interference.

Page 52 The hidden tricks and traps associated with an 802.11a deployment.

Buyer's Guide chart: Go online (www.nwfusion.com, DocFinder: 9824) for information on 137 wireless LAN products.

ILLUSTRATION: RICK PINCHERA

Alliance pledges unified wireless

■ BY JOHN COX

Network executives looking to map out their wireless data strategies were inundated with news and advice last week — some of it promising, some of it sobering.

Among the key developments:

• About 200 leading device makers, service providers and content companies have joined hands to form the Open Mobile Alliance (OMA), which will try to create interoperability standards for public wireless networks and try to eliminate a cloud of confusion and uncertainty that has hung over the industry.

• Gartner tossed cold water on some of the overheated wireless hype with a report that shows total cost of ownership for wireless PDAs at about $4,400 per user per year.

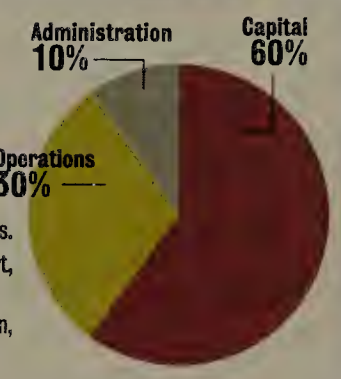
• A variety of wireless software and hardware vendors, including Palm, SMC Networks and SyChip, announced products they say will make networking easier and more efficient.

"[The OMA] has a lot of potential," says Craig Mathias, a principal with FarPoint Group, a wireless consulting company. "They're

See Wireless, page 75

What PDAs really cost

Gartner says a PDA with wireless modem costs $4,392 per user per year. Here's where that money is going:



■ Capital includes hardware, software, net services.
■ Operations includes technical service and support, application management and development.
■ Administration includes evaluation, implementation, training.

Newcomers angle for security role

■ BY ELLEN MESSMER

A slew of lesser known but promising vendors this week will roll out products designed to safeguard networks from escalating Internet threats.

While many companies are reluctant to give start-ups a role in something as sensitive as security, others are looking for fresh ways to snuff out the likes of the Nimda and Code Red worms that have been menacing Windows networks since last summer.

Companies such as Entercept Security Technologies, PoliVec and nCircle are among the newcomers looking for their share of the $7 billion that will be spent on security this year, according to IDC.

Oklahoma State University turned to PoliVec and its new Scanner 3.0 to watch for security vulnerabilities and automate

See Security, page 18

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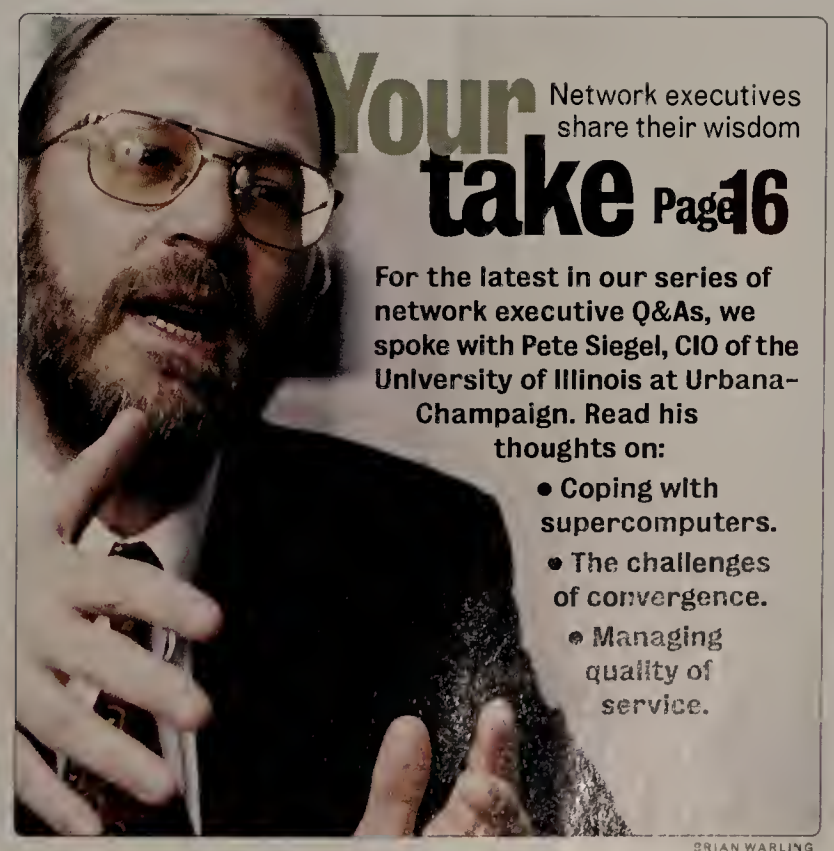

Your take
Network executives share their wisdom

Page 16

For the latest in our series of network executive Q&As, we spoke with Pete Siegel, CIO of the University of Illinois at Urbana-Champaign. Read his thoughts on:

- **Coping with supercomputers.**
- **The challenges of convergence.**
- **Managing quality of service.**

BRIAN WARLING

"He said we should _

Get your infrastructure ready for anything. You've got relentless hackers, massive usage spikes, 24/7/365 demands, big CEO requests, etc., etc., etc. What is going on here? This, of course, is today's unpredictable business environment. In this environment, where _____ can happen at any moment, you need to keep your infrastructure prepared for anything and everything. And that is exactly what the Microsoft® platform is designed to help you do. Here's how:

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The Microsoft platform enables high levels of security through built-in encryption, authentication, and access control that can be centrally managed and integrated. In addition, it helps protect sensitive data and applications by securing your network perimeter against attacks and unauthorized use.

Manageability

The Microsoft platform allows you to build and maintain a technology infrastructure that is reliable, cost-effective, and easily modified to meet changing business needs.

Microsoft Systems Management Server 2.0 provides comprehensive hardware and software inventory, enterprise software distribution, remote control, and software metering for Microsoft Windows®–based desktops and servers. Microsoft Active Directory® service and Group Policy features in the Windows 2000 Server family simplify management of users and devices. Microsoft Operations Manager 2000 provides enterprise-class event and performance management. And Microsoft Application Center 2000 makes the management of Web server farms as simple as managing a single server.

*This level of availability is dependent on many factors outside of the operating system, including other hardware and software technologies, mission-critical operational processes, and professional services. †Source: Transaction Processing Performance Council, May 2002. © 2002 Microsoft Corporation. All rights reserved. Microsoft, Active Directory, BizTalk, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

Interoperability

The standards-based technologies in the Microsoft platform work with your existing infrastructure, support future technology investments, and leverage your investment in the skill sets of your current staff.

The Microsoft platform can enable communication with other operating systems, including UNIX-, NetWare-, and IBM-based systems, using common protocols. It can also access file shares and printers on other platforms, integrate new applications with existing data sources, and reduce the burden of administering multiple systems. And XML-enabled Microsoft BizTalk® Server 2002 even allows you to orchestrate business processes and applications across organizational boundaries.

Reliability

With the right investments in people, processes, and the technology of the Microsoft platform, you can achieve the highest levels of reliability you need to run your business.

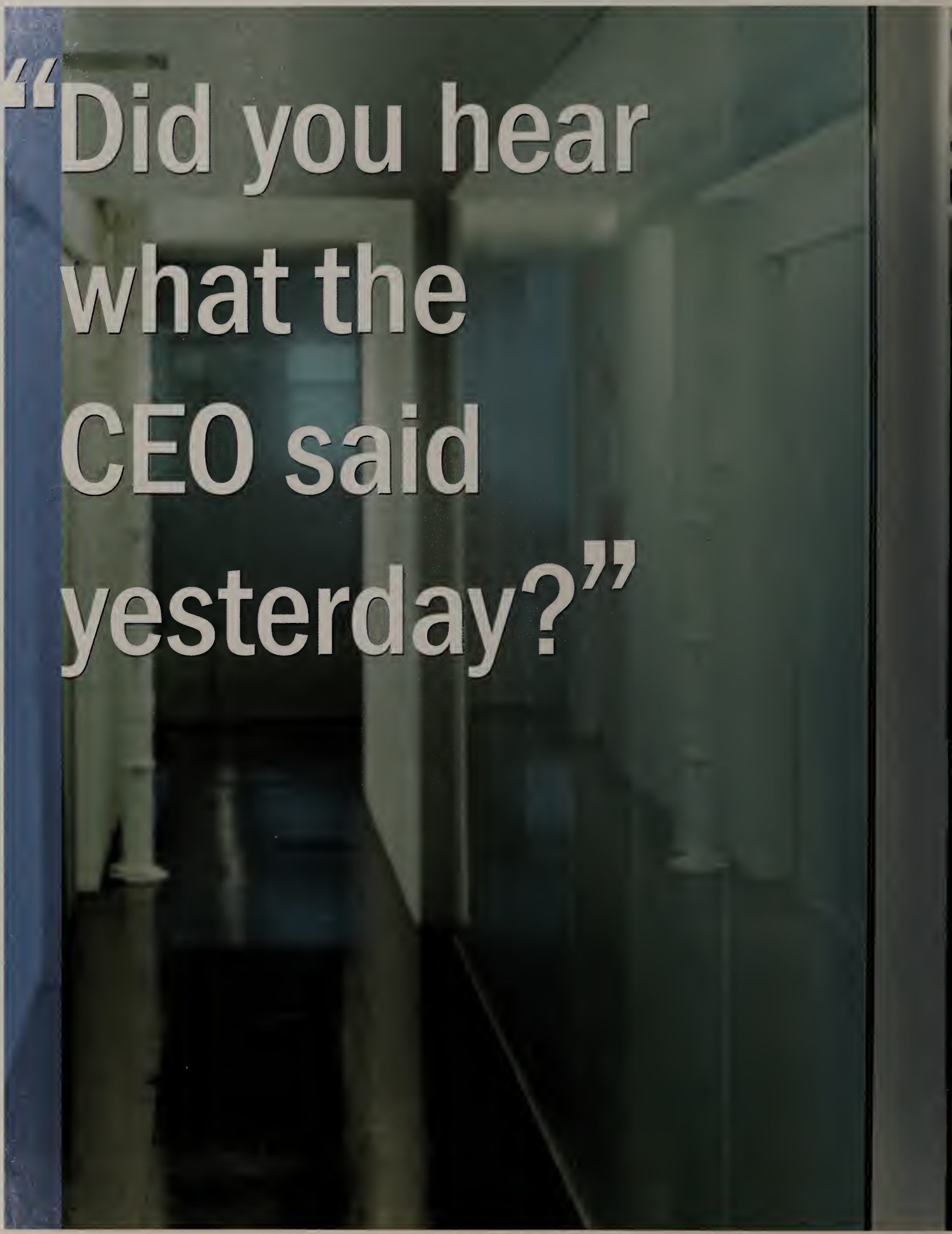
The Windows 2000 Server family delivers up to 4-node clustering and 32-node load balancing to support mission-critical applications and solutions. Features like these, along with established best practices and support from Microsoft's industry partners (including fault-tolerant systems vendors), allow customers to build solutions that provide up to 99.999% service availability.*

Scalability

The Microsoft platform scales to handle your most demanding workloads.

The Microsoft platform gives you the choice of thinking bigger, smaller, up, or out, with the lowest price-to-performance ratio of any competitive platform.† You can deploy Microsoft SQL Server™ 2000 on Windows 2000 Datacenter Server for heavy-duty ERP and transaction processing, and scale up to support terabytes of data and millions of transactions. Or scale out with Application Center 2000 by adding clusters of Windows 2000–based servers running distributed applications. Either way, the scalability you need is there.

For more information on how to prepare your infrastructure for _____, _____, and _____, visit microsoft.com/enterprise Software for the Agile Business.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Microsoft

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NetworkWorld

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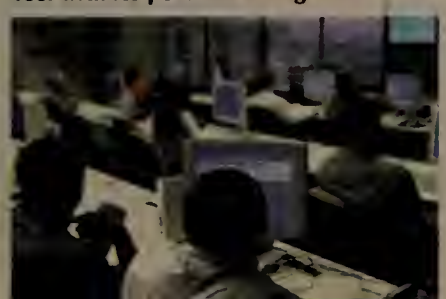

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There's more to deploying a wireless LAN than meets the eye. Network World Test Alliance member Tom Henderson uncovers the tricks and traps involved in putting together an 802.11a wireless network. **Page 52.**

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Buyer's Guide chart:
Go online for information on 137 wireless LAN products.
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Interactive

Novell's purchase of SilverStream
Is the acquisition a good way for Novell to get into Web services, or only a way to get battered by established Web services vendors such as IBM, Sun and Microsoft? Add your thoughts to the discussion.
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HTML e-mail: Bad or misunderstood?
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T-1 vs. PRI ISDN
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Seminars and Events

State of Security: Your way toward a safe net
We know security is your top concern and you've got lots of questions. Find the answers at our Security Town Meeting. Register now for a city near you.
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Columnists

Compendium
Spam fighters
A new spam-fighter for Unix systems; a PowerPoint competition and more as Fusion Executive Editor Adam Gaffin continues his search for vitally important stuff.
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Help Desk
Mini-WAN on the cheap
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SOHO Tech
Building a home network
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Start-up survival tips
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■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 14 for more contact information. **REPRINTS:** (717) 399-1900

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News Bits

Standards group blesses 10G Ethernet

■ The IEEE's 802.3 Ethernet standards group approved the final draft of the 10G Ethernet standard last week, clearing the way for vendors to begin shipping nonproprietary 10G bit/sec products. While products based on 10G Ethernet technology have been on the market for almost a year, the official go-ahead gives companies and carriers assurance that products based on the standard can easily interoperate — the hallmark of Ethernet technology, standards crafters say. 10G Ethernet technology, which was three years in the making, moves data over single- and multimode fiber 10 times faster than the current Gigabit Ethernet standard and has a range between less than a half mile and 24 miles. Vendors with proprietary 10G Ethernet switches shipping or announced include Avaya, Cisco, Enterasys Networks, Extreme Networks, Foundry Networks, Nortel, Force10 Networks and Riverstone Networks.

KPNQwest net nears the end

■ Volunteer unpaid employees who were keeping KPNQwest's Ebone network up and running were preparing to shut down the network Friday, barring a last-minute purchase of the bankrupt European telecom provider's assets. KPNQwest filed for bankruptcy last month. The company told customers to find alternate providers. By the middle of last week, Internet traffic monitor Matrix Netsystems was reporting that KPNQwest's network performance was deteriorating badly. Average packet loss had jumped to between 4% and 6% from less than .5% as peering partners cut their connections to KPNQwest. KPNQwest has handled about 25% of Europe's Internet traffic, and other European carriers might have problems accommodating the additional traffic loads they are bound to get.

Sun to trumpet ONE this week

■ Sun this week will unveil an expanded set of tools and server programs, dubbed the Sun Open Network Environment Development platform, for building Web services. The company is expected to unveil a Universal Description, Discovery and Integration registry server, which stores information that clients use to find and connect to Web services. Also expected is a new version of the former Forte tools, now called Sun ONE Studio. The new version is likely to incorporate more Web services standards and protocols. Sun also might roll out a new version of its Sun ONE Application Server.

C&W to ax some U.S. services

■ Cable & Wireless has begun notifying customers that it will be exiting the domestic voice services, frame relay and ATM markets in the U.S. C&W plans to concentrate on its hosting business, which it bolstered by acquiring Exodus Communications and Digital Island, as well as high-end IP services, including IP VPNs, content delivery networks and IP voice. The cutoff date for the canceled services will be in the late summer or early fall. Voice, frame relay and ATM customers are being advised to find alternative providers.

COMPENDIUM

Never let programmers out

***The Philadelphia Inquirer* reported last week on a programmer who is looking for a permanent home for the giant collection of hotel toiletries he's collected over the years: "I want to have my collection permanently displayed in the Capitol Rotunda in Trenton, near Aaron Burr and Alexander Hamilton's dueling pistols," he said.**

Get yourself in a lather with a daily dose of Compendium at www.nwfusion.com, DocFinder: 9841.

■ TheGoodTheBadTheUgly

You're hired. According to a poll of roughly 14,000 CIOs, 16% plan to increase their hiring of IT professionals between July and September, while only 3% plan to decrease hiring. Finance, insurance and real estate companies are most optimistic about hiring, according to the survey conducted on behalf of RHI Consulting, which hires out IT professionals.

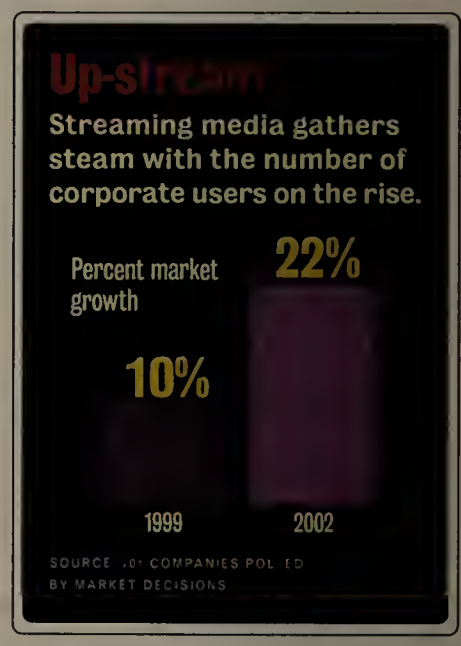
In a BIND. Many large companies use vulnerable versions of software that maps text-based Internet domain names to numeric IP addresses, putting them at risk of becoming unreachable on the 'Net, according to a test conducted at the request of the IDG News Service by software and consulting firm Men & Mice. About 14% of Fortune 1000 companies run a version of Berkeley Internet Name Domain DNS software (BIND 9, prior to Version 9.2.1) with known vulnerabilities, the study found.

Patching things up. Microsoft last week issued three bulletins offering patches for four recently discovered security vulnerabilities in several of its products. A buffer overrun flaw in Windows NT, 2000 and XP was rated "critical" by the vendor. And yes, of course, Microsoft's Internet Information Server also is at the heart of one of the vulnerabilities.

>> Go online to read Microsoft's bulletins. www.nwfusion.com, DocFinder: 9856.

Training drives streaming use

■ The hype around streaming media might be in the consumer arena, but a new study conducted by Market Decisions for Microsoft shows that nearly one in four large companies uses the technology, up from one out of 10 in 1999. Market Decision, which polled 700 companies with 500 PCs or more, found that 76% of those that are using streaming do so for internal corporate training. The company also found that 40% of companies with 5,000 or more PCs are using streaming technology.



McAfee reports JPEG virus

■ A new virus can, for the first time, infect image files, according to antivirus software company McAfee Security, a division of Network Associates. This means the virus can spread through Web sites containing infected image files, and force antivirus companies to reengineer their products, McAfee officials say. The virus, which is being called W32/Perrun by McAfee, is not yet in the wild, meaning it is not spreading on the Internet, and was sent to McAfee by its author. The virus is built to spread first as an executable, or .exe, file and then in JPEG image files, he said. The virus, if it is spread in the wild, will appear as an executable that will infect JPEGs when it is run, says Vincent Gullotto, senior director for McAfee Anti-Virus Emergency Response Team. The executable can be transmitted in standard ways, such as by downloading and via e-mail. The first JPEG viewed after the executable is run will have the virus code appended to it, Gullotto says. The virus will then seek out other JPEG files in the same directory and try to infect them, he says.

Two search companies find each other

■ Two software makers with natural-language search technology have merged to form InQuira. The new company ends the independence of one-time rivals Answerfriend and Electric Knowledge but continues their efforts to develop intuitive question-and-answer search technology for corporate Web sites. Launched last week, InQuira offers three applications based on Answerfriend and Electric Knowledge technologies: InQuira 5 for Self-Service, InQuira 5 for Search and InQuira 5 for Call Centers. InQuira 5 runs on Windows NT/2000, Unix Solaris and Linux, and is available immediately. Pricing starts at $150,000.

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Cisco steps up LAN security efforts

■ BY PHIL HOCHMUTH

SAN JOSE — Feeding into the "lock-it-all-down" mentality surrounding network security these days, Cisco last week released enhancements to its desktop switches aimed at curbing internal LAN mischief by end users.

The security features, which are free software upgrades for owners of Catalyst 3550 and 2950 stackable workgroup switches, include Secure Shell (SSH) and SNMP Version 3, which could let network managers use encrypted Telnet and SNMP sessions.

Cisco also has added port-based access control lists (ACL), which can prevent unauthorized users from accessing servers and other devices on a LAN.

Support for the IEEE 802.1X port authentication standard has been added to the Catalyst 2950. This technology can be used to require Windows XP clients (currently the only desktop operating system to support 802.1X) or 802.1X-enabled Cisco Wireless LAN clients to authenticate to a network device before gaining LAN access.

The new Dynamic Host Configuration Protocol Interface Tracker for the 3550 series can provide an easy way to locate what port a client is attached to by tracking down an IP address allocated by a DHCP server (see diagram).

The Catalyst 3550 and 2950 compete with fixed-configuration boxes from Enterasys Networks, Foundry Networks, Nortel and others. Switches from Foundry and Enterasys also support 802.1X and port-based ACL features.

"The biggest feature by far we're using is support for SSH," says Benjamin Hockenhull, network coordinator at Webster University in St. Louis. He says having encrypted links for managing his Catalyst 3550s will ensure anyone snooping around on the network will not be able to change settings to network devices.

"SSH lets us manage our switches securely, which is huge for us. Until now, we had to pass plain-text passwords to our switches to gain access, which we didn't like," he adds.

Hockenhull says he is also using ACLs on the Catalyst 3550s to limit what users can do from certain ports on the network, such as e-mail and Web-browsing stations in public areas around the school.

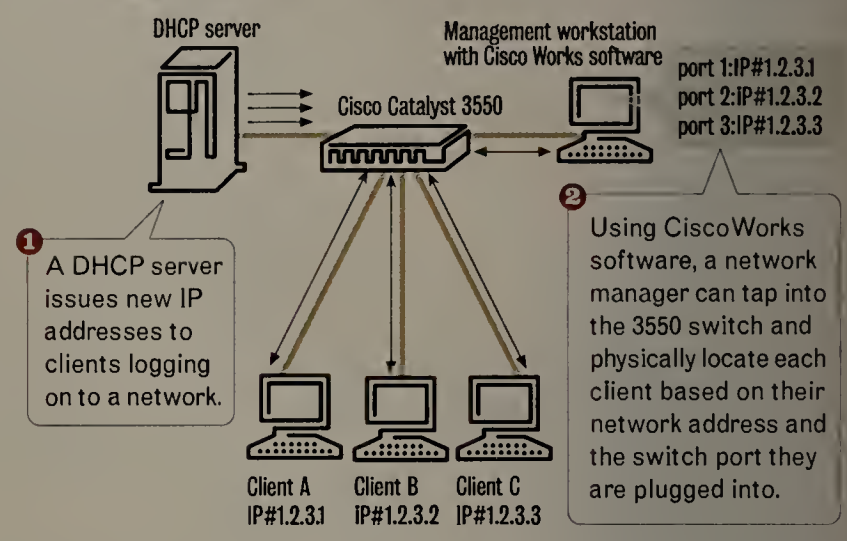
Hockenhull likes the idea of 802.1X, but because it is only supported on XP, he will wait until the standard is more widely adopted before putting it on his network.

SSH and SNMP Version 3 capability will be available in the third quarter of this year for 3550 Series switches and for 2950 Series switches with Enhanced Software Image. DHCP Interface Tracker is available now for 3550 Series switches.

Material from the IDG News Service was used in this report.

Keeping watch

New security software for Cisco's Catalyst 3550 desktop switch helps customers keep track of client activity by matching physical switch port numbers to IP addresses.



Switch hardware debuts

Cisco last week also introduced a new fiber-based workgroup switch for deploying fiber to the desktop or aggregating 100M bit/sec connections over fiber connections.

The newest Catalyst family member, the 3550-24-FX-SMI switch, comes with 24 100Base-FX multimode fiber ports and comes with two slots for fiber or copper gigabit interface converters (GBIC). Cisco is targeting the switch for desktop fiber deployments, or for midsize networks that want to aggregate Fast Ethernet connections into a fiber backbone.

Cisco also released a copper-based GBIC for the Catalyst 3550 and 2950 switch lines along with the older Catalyst 3500XL and 2900XL lines, and Catalyst 4000 and 6500 series switches.

The 3550-24-FX-SMI costs $5,500 and the GBIC costs $400.

— Phil Hochmuth

WorldCom offers a la carte managed services

■ BY JENNIFER MEARS

CLINTON, MISS. — WorldCom last week became the latest service provider to offer a la carte services that let users pick and choose offerings as they need them rather than being forced to move to a full-blown managed service.

WorldCom's services now include managed storage, global server load balancing and remote IP VPN access. While most of the services are available now to customers hosted in WorldCom's U.S. data centers, the U.S. rollout is not expected to be complete till year-end. Worldwide deployment to all WorldCom data centers is scheduled for sometime next year.

The services let WorldCom bridge the gap between its basic collocation services and the fully managed services it now offers through Digex, says Melanie Posey, an analyst with IDC.

"The services allow customers to maintain some of the ownership of their data network and data center requirements, but outsource services on an ad hoc basis," says Rebecca Carr, director of WorldCom Global Hosting Services. "It's really to allow them to improve security and performance, and respond to some of their business continuity needs . . . while mitigating a lot of the capital expenditures."

Other hosting providers, such as AT&T, Sprint and Exodus, offer similar a la carte services.

Many businesses are looking for specific services beyond collocation, but have IT investments in other areas they don't want to scrap. What hosters want to do is let users select the services they need, analysts say.

WorldCom's new Data Storage Services include backup and restore, network-attached storage and storage-area networks. Carr says the company sets up the storage architecture for each customer and then monitors and manages the system based on the customer's business rules.

The storage services, which can be grown as needed, are available immediately in WorldCom data centers in Ashburn, Va; Boston; Chicago; Carteret, N.J.; and San Jose. The company will use a variety of storage gear from Hitachi, EMC, Hewlett-Packard, Cisco, StorageNetworks, Sun, Veritas and others.

The Global Server Load Balancing Service expands WorldCom offerings, which only had been available among servers within a single data center. With the new service, companies can balance traffic loads among servers in multiple collocation facilities. This service is available within all of WorldCom's 15 U.S. data centers, Carr says.

The IP VPN Remote Services package extends WorldCom's dedicated IP VPN service that sets up direct links from the customer site to the WorldCom facility to let companies have secure access to their applications from more than 80 countries. The IP VPN service supports IP Security, Layer 2 Tunneling Protocol and Point-to-Point Tunneling Protocol. A Nortel Contivity switch is deployed and managed by WorldCom within the WorldCom data center.

The a la carte services let users at Varitek take advantage of specific managed offerings without giving up control, says Randy Bayne, CEO of the Houston asset management company.

Varitek has servers in WorldCom's Houston collocation facility and was looking for additional managed capabilities, but was reluctant to move into a fully managed offering from Digex.

"We feel the data and management of that data is our core asset and being in the collocation facility gives us . . . the way to manage that [data] the way we feel comfortable," he says. ■

A menu of services

Here's a rundown of the offerings and average prices of WorldCom's new services:

Service	Monthly cost
Data Storage Services including storage-area networks, network-attached storage and back-up and restore services.	Starts at $3,500.
Global Server Load Balancing	Starts at $600.
IP VPN Remote Services	Starts at $400 for managed services and bandwidth, plus $7.95 per user, per month.

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Novell buys into Web services

SilverStream acquisition strengthens application server, development environment.

■ BY DENI CONNOR

CAMBRIDGE, MASS. — Customers and industry analysts are applauding Novell's acquisition of application server vendor SilverStream Software last week as an entry into the rapidly developing Web services market.

The struggling network software vendor spent $212 million of its $700 million in cash to acquire SilverStream, a company that reported $68 million in revenue last year. SilverStream, which has not been profitable, does have a $100 million pile of cash that Novell can tap into.

The company has a range of Java, XML and Web services applications that Novell says it will integrate with its DirXML, eDirectory and ZENworks software and its NetWare operating system. The products include:

- A Java 2 Platform Enterprise Edition (J2EE)-based application server and Web services engine called Extend that lets IT managers build cross-platform applications.
- An integration server that lets IT developers connect via XML to back-end legacy systems and manage business processes.
- Interaction and Portal Server, products that let IT developers build business applications and portals.

"The SilverStream acquisition provides Novell with a real application server, as well as a viable development environment," says Peter Strifas, senior directory engineer at Mount Sinai Medical Center in New York. "Novell already has a good lineup of entry- and midlevel services — iPrint, iFolder, WebAccess, eDirectory and the new ZENworks Synergy — that are good pieces of a Web services solution."

SilverStream's standards-based Web services development environment gives Novell something new. Previous Novell products were difficult to write to because they used proprietary conventions such as NetWare Loadable Modules and hard-to-understand APIs. SilverStream uses technologies many developers are familiar with, such as Java and XML, and Web services standards such as Simple Object Access Protocol.

Chip DiComo, manager of global information systems for transportation firm Hellman Worldwide Logistics in Miami, says Novell's Software Developer Kit is poor, and that developing network applications using Novell's tools is difficult.

"Novell's Portal Services, Web services and management with eDirectory will benefit greatly from SilverStream's tools," he says.

Further, Novell has never had an adequate application server, an area dominated by IBM and BEA Systems. It shipped NetWare 6 as an application server last October and promised a more standard application development environment, but to date the company has offered little other than its Java Virtual Machine, DirXML, which is based on XML and a version of IBM's WebSphere Studio. SilverStream's application, integration and interaction servers can be used with Novell's products to add application server capability.

Novell Vice Chairman Chris Stone says SilverStream's J2EE, XML and Web services application development environment fills out what Novell calls its "services-oriented architecture" — consulting services, application development and infrastructure.

"The acquisition also gives them a more complete story in management — they're just adding Web services to it," says Laura Didio, a senior analyst with The Yankee Group. "It certainly gives them the most complete network management and development package — you put SilverStream together with ZENworks and you have a very compelling tale."

Not everyone is completely sold on the deal. Daniel Blum, senior vice president and research director at The Burton Group, and a *Network World* columnist, says Novell's cash could have been better spent elsewhere.

"Novell needs to create new revenue opportunities based on selling applications that play on top of its directory, which is becoming commoditized," Blum says. "They've expended part of their strategic cash reserves on this product, when they could have strengthened their provisioning and Web access management platforms. It might have been better to keep building that foundation before adding more bricks higher up."

Novell might have a tough time grabbing market share in a Web services market dominated by established vendors.

"Novell says it is going after Microsoft, IBM and BEA Systems in the software platform market," says Ted Chadler, an analyst with Forrester Research. "That's going to be tough for them because each of those [companies] has a lot of capital and an awfully broad portfolio of products."

Moreover, some observers say Novell's history of acquisitions is spotty. The company did acquire a suite of office applications from WordPerfect; a database, Quattro Pro, from Borland; and Unix from Unix System Laboratories that went sour. However, technologies the company acquired in transactions with smaller companies such as Excelan, Callisto Software, Novetrix, JustOn and PGsoft have been successful. ■

PROFILE: SILVERSTREAM SOFTWARE

Location:	Billerica, Mass.
Employees:	480
Business:	XML Web services, J2EE application server, development environment.
Product:	eXtend
Key personnel:	David Litwack, president; Craig Dynes, vice president and CFO; Steve Benfield, CTO.
Finances:	$60 million in 2001

WebSphere users get apps integration help

IBM targets e-commerce customers looking to meld CRM and ERP.

■ BY ANN BEDNARZ

SOMERS, N.Y. — IBM this week is announcing an integration product aimed at a particular class of users — midsize companies using the WebSphere Commerce suite that haven't integrated their e-commerce software with their back-end systems.

The purpose of the new product, called IBM CrossWorlds Extender for WebSphere Commerce, is to make integration easier and more affordable for Commerce customers that don't need a full-blown IBM CrossWorlds enterprise integration platform.

CrossWorlds is the company IBM acquired last fall that specialized in business-process automation. IBM retained the CrossWorlds branding for its business-process-oriented middleware, which features predefined integration templates organized around common business tasks, such as tracking an order. CrossWorlds Extender includes the same core technology as the enterprise version, but its deployment options are limited. It will tie WebSphere Commerce to a back-end source, such as a CRM or enterprise resource planning application — but only one source. Conversely, the enterprise version of CrossWorlds allows for multisystem integration.

Rising concern

Among 1,082 respondents to an IDC survey, 58% deem integration projects to be critical or extremely important to their business. Looking forward, 83% foresee this level of importance in two years.

Like its ascendant, CrossWorlds Extender makes use of prepackaged business-process templates that are aimed at reducing the burden of defining and coding integration points. More heavy-duty integration platforms — IBM's and those from competitors such as webMethods and Tibco Software — typically require users to engage consultants for the implementation process, says Steve Gatto, WebSphere Commerce integration manager. That's something IBM says it hopes to avoid requiring with the lighter-weight CrossWorlds Extender product.

Gatto estimates the new bundle will reduce initial implementation costs by 30% to 70% vs. a typical application integration project.

The software comes preconfigured to work with WebSphere Commerce. It's built on IBM's WebSphere Application Server and DB2 Universal Database. Because it shares the same core technology as the enterprise version of IBM CrossWorlds, customers can upgrade easily as their integration needs grow, Gatto says.

Application integration continually shows up on companies' to-do lists. According to an April release of Morgan Stanley's ongoing CIO Survey Series, application integration is the No. 3 priority for 2002, after security software and connecting to customers over the Internet. Yet according to Hurwitz Group, fewer than 35% of companies have fully installed integration products.

CrossWorlds Extender for WebSphere Commerce will be available in the third quarter. Pricing starts at $150,000.

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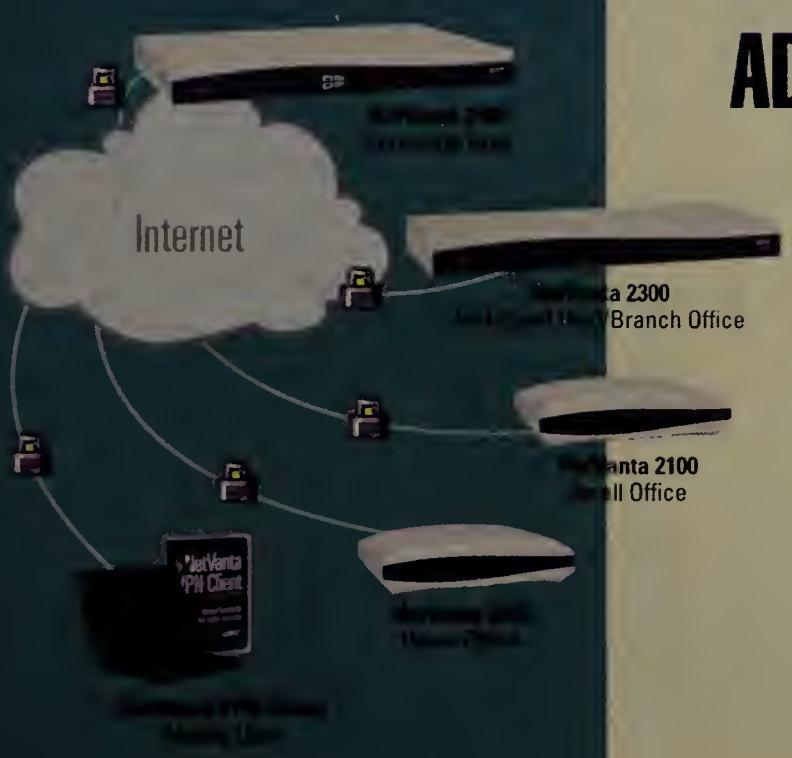

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Sun adds oomph to SAN package

■ BY DENI CONNOR

SANTA CLARA — Sun this week will announce an upgraded software and hardware package that supports much faster and larger storage-area networks.

Sun's StorEdge SAN 4.0, which previously supported SANs with no more than two 1G bit/sec Fibre Channel switches, now supports 2G bit/sec Fibre Channel switches and up to 64, 64-port switches on a SAN. Sun, which already resold SAN adapters and switches from Qlogic and adapters from Emulex as part of its StorEdge SAN line, has added 16- and 64-port switches from Brocade and McData to its arsenal.

Sun also has made its offerings more appealing by expanding support beyond its own Solaris operating system. StorEdge now works with HP-UX, AIX and Windows NT/2000 systems.

StorEdge 4.0's improved software component includes Traffic Manager, which lets data requests be distributed across network links and servers to balance traffic loads. It also includes Diagnostic Expert, which adds real-time monitoring of storage resources and the ability to isolate problems and recommend fixes.

Tony Prigmore, senior analyst with Enterprise Storage Group, pointed to new features in the Resource Manage Suite 6.0 piece of StorEdge, which lets companies track SAN traffic trends and sniff out problems before they occur.

Analysts say the improvements will make Sun's offerings even more competitive.

The company has become increasingly aggressive in storage and finished behind only EMC, Compaq and IBM with its 11% share of the $7 billion SAN-attached storage system market last year, according to The Yankee Group.

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Vendor gussies up freeware to solve net mgmt. needs

■ BY DENISE DUBIE

DENVER — Newcomer Fidelia is targeting the midsize-enterprise market with network and performance management tools that customers say meet their monitoring needs without breaking the bank.

The company this week will introduce NetVigil, which is designed to monitor networks, applications and business transactions. Founded 18 months ago, Fidelia comes from a history of network management freeware dating to the early 1990s. NetVigil grew out of Nocol, a freeware application created by Fidelia's founder, Vikas Aggarwal, who serves as company president and CTO. Aggarwal says Nocol boasts about 5,000 users.

With Net Vigil, Fidelia has extended Nocol's capabilities beyond small LANs to distributed LANs and WANs.

Richard Beebe, manager of systems and network engineering at Yale University School of Medicine, is beta-testing NetVigil in an attempt to consolidate network management efforts across departments at Yale. He's been using Nocol in conjunction with other freeware management tools such as Big Brother, Rover and MRTG (see www.nwfusion.com, DocFinder: 9853). After years of cobbling together freeware, Beebe says he sees NetVigil as a chance to get the features of a network management framework without paying a hefty fee.

Yale's Beebe says NetVigil provides net management framework features for less.

With prices starting at $10,000 and scaling to about $100,000 for a very large deployment, NetVigil's cost is considerably less than the millions of dollars a large company could spend on management software from Computer Associates or IBM Tivoli. Fidelia says NetVigil is ideal for monitoring networks with about 15 to 80 servers. Aggarwal says NetVigil could scale to manage larger networks, although he concedes the software would most likely complement other vendors' products at this point.

"We've looked at [Hewlett-Packard's] OpenView, [Aprisma's] Spectrum and a few others, but none gave us anything that we weren't getting from our free monitors, and they were much less flexible and very expensive," Beebe says. He would like to see NetVigil pinpoint problems faster and provide "easier hooks" into APIs so that he could avoid writing extra software to extract information from certain applications and devices. But "most of the usability features we've asked for, they've added," he says

IT groups within Yale use a number of monitoring tools for network devices and applications, and Beebe says NetVigil will replace the "current stock of monitors . . . and combine both types of monitoring into one package." This will give the groups a consistent management strategy, he says. NetVigil correlates the performance of applications, servers and devices by monitoring metrics such as response time, latency and bandwidth usage.

NetVigil runs on a Solaris or Linux server and once installed, the software discovers network elements to be managed such as Web and application servers, databases and devices. The software comes with an SNMP agent, but Fidelia says NetVigil also will use agents already on the managed device. Each NetVigil monitor pushed out to the managed devices also stores its own database in which it keeps performance data about the device. The company says the local databases reduce the amount of traffic traversing the network.

The software also performs synthetic transactions to spot which piece of a business service is slowing its delivery to an end user. Beebe says NetVigil, even in beta stage, has spotted problems faster than his current methods.

"I can say that twice now we've been debugging a network problem and late into the problem decided to look at NetVigil to see what it could tell us. Both times it pinpointed the exact problem, something that none of our existing monitors was telling us," Beebe says. "Needless to say, we've started looking at it first."

Fidelia: www.fidelia.com

PROFILE: FIDELIA

Location:	Denver
Founded:	December 2000
Product:	NetVigil monitoring software that tells users whether their networks are meeting service levels.
Key personnel:	Thomas Thekkethala, CEO; and Vikas Aggarwal, president, CTO and founder.
Finances:	Privately held with funding from JT Venture Partners, Windspeed Ventures and Freedom Hill Capital.
Competitors:	Hewlett-Packard and NetIQ.
Fast fact:	NetVigil technology is based on Nocol, a popular freeware application first developed in the early 1990s. Nocol is network and system management software that runs on Unix systems.

■ THIS WEEK'S QUESTION:
Which company was Ford's primary partner in Wingcast, the recently shuttered venture aimed at developing wireless services for vehicles?
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Q&A

Your take

Network executives share their wisdom

University IT exec balances net needs of students, faculty

Home to some of the world's most powerful supercomputers and bandwidth-intensive applications, the University of Illinois at Urbana-Champaign was a pioneer in the use of high-speed networks for scientific research. Now UIUC is upgrading its network to provide better performance to all its departments — not just computer science and engineering. CIO Pete Siegel spoke recently with Network World *Senior Editor Carolyn Duffy Marsan about the importance of managing bandwidth and why improving service quality is his top priority.*

Please describe your network infrastructure.

We have two connections to the Internet and two connections to Internet 2 [a high-speed IP network that links major universities]. Our peak usage for the Internet is about 110M bit/sec, and we have redundant carriers and paths. We have two connections to Internet 2, a 155M bit/sec connection for the university and a 622M bit/sec connection for the National Center for Supercomputing Applications [NCSA, a federally funded research center on campus]. Most of our research traffic is on Internet 2, while e-mail and Web surfing is on the Internet.

We also connect to the Illinois Century Network, which is a state-run network that links academic institutions, libraries and public schools. We have one of the three largest academic libraries in the country, so we get a lot of traffic coming in over the Internet to our library system.

More than 90% of our traffic is IP, although we have some Novell IPX and Appletalk.

Our campus network connects more than 200 buildings. We have 50,000 users, including undergraduate and graduate students, faculty and staff.

UIUC has some of the world's most powerful supercomputers. How do these systems drive your bandwidth demands?

NCSA creates a level of expectation on campus. Not just NCSA, but also our computer science department. They use the high bandwidth in their facilities all the time. Other people see that, and they want it in their spaces. So what these groups do is create demand on campus that is an order of magnitude of what it would be otherwise. From my point of view, it's a great pressure for innovation.

What upgrades to this network infrastructure do you have planned in the next year?

We have a major campus upgrade going on to get all of our buildings up to 100M bit/sec for now and capable of 1G bit/sec in the future. We still have sites that are using Category 3 wiring [which supports 10M bit/sec]. All of our engineering and IT-oriented fields have high-performance networks. Now we want to get the same capabilities out to fine arts, architecture and other departments. Unlike a number of other schools, we don't see a correlation between science and bandwidth. We see high-bandwidth needs across the campus. It will take a couple of years, but we're more than halfway there now.

We're spending $4 million this year on upgrades. What's slowing us down a little is [a shortfall in] the state budget. Capital investments will be less next year, although we'll still be moving ahead. We're also planning to increase our annual network operations budget from $4 million to $9 million. It will take about a three-year ramp-up for us to get to that level.

What is your role relative to the network infrastructure and how critical is it to you vs. other IT-related issues?

There are two issues that are most critical to me. One is the communications infrastructure. Having the network perform with high quality of service and with very good accessibility to everybody on campus — that's No. 1.

The second is the use of educational technologies. So it's not just the research use of the network, but the educational use of the network. Here's where I'd like to see us: A professor comes into the classroom and wants to set up a video session with a peer at another university. He clicks a button, and it just works. There's an interesting difference between this community and the research community. You get up in front of a group of students at 9 a.m. You have 50 minutes to get your point across. If you spend the first 5 minutes fiddling with the network and your computer, you're toast. It's very different from the research context, where you say, 'OK, it didn't work today but it'll work tomorrow.'

Getting the network, with extremely high reliability, into the classrooms as well as into the research spaces is the linchpin of everything we're doing.

What emerging network technologies do you see as having the most promise for UIUC and why?

Tools for quality of service. These kinds of technologies are going to be critical because they're going to allow the end user to create, with a Web page, a social contract with the network. The user can say, 'I need this capacity at 9 a.m.' If you tell me I've got it, then I can rest assured. That [capability] is just developing in terms of the core infrastructure. On this campus, it would be nice to say that if it's a faculty member who has a class, they're going to get a certain level of priority that's guaranteed. And if it's a student who wants to send an MP3 to a friend, we'll just

See Siegel, page 18

Getting personal

Pete Siegel	
Title:	CIO (since August 2000)
Organization:	University of Illinois at Urbana-Champaign
Responsibilities:	Ensuring an appropriate campus infrastructure in support of research and instruction.
Annual IT budget:	$4 million, with an extra $4 million in capital expenditures this year. The base $4 million network budget represents 6% of the CIO's overall budget of $60 million.
Previous jobs:	Director of academic IT at Iowa State University from 1998-2000. Before that, Siegel was at Cornell University for more than 20 years in various roles, including executive director of the Cornell Center for Theory and Simulation in Science and Engineering, a federally funded high-performance computing center.
Education:	Bachelor's degree in linguistics from the University of Hawaii and master's degrees in linguistics from the University of Hawaii and Cornell. Completed Ph.D. research in linguistics.
First computer:	IBM 360, using punchcards, in the early 1970s.
First experience on the 'Net:	In the early '80s at Cornell. "There was a guy who used to e-mail out the weather reports hourly, which was great because my office had no windows," he says.
Home computer network:	A 10M bit/sec broadband cable modem and a wireless infrastructure. He has two wired computers, two PDAs and one laptop.
Last good mgmt. book read:	"The Tipping Point" by Malcolm Gladwell. It's about how small changes that are well-timed can lead to major changes.

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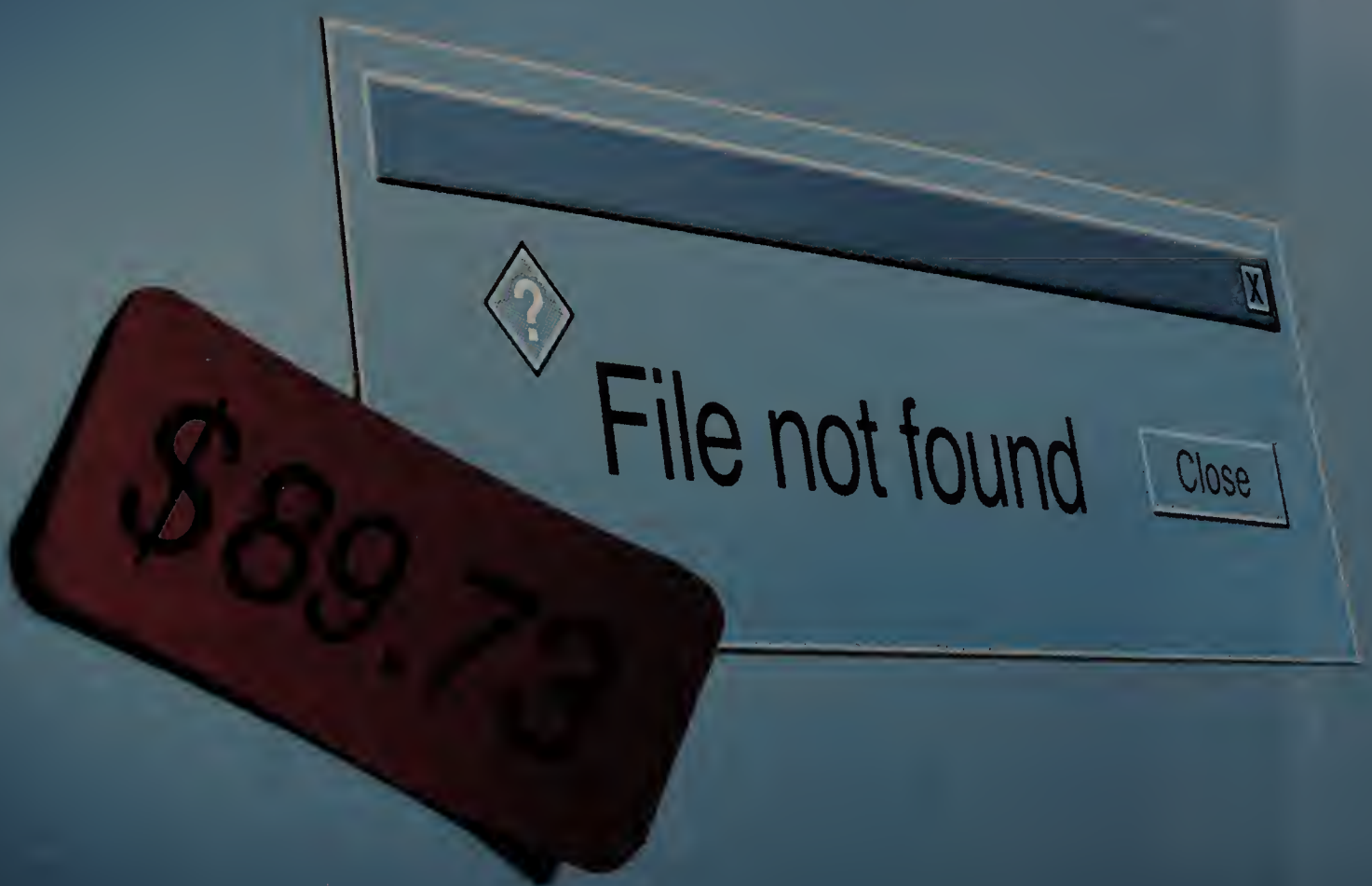

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Security

continued from page 1

patch installments in the wake of a nasty case of Nimda. Scanner 3.0 can detect vulnerabilities in Windows, Unix and Linux.

"Because we have a name that ends in 'edu' we tend to be a target for hackers," says Robert Arnold, director of computer and IS at the university.

New security flaws are discovered all the time — Microsoft acknowledged a few more last week in Windows NT 4.0 and 2000 servers that require an immediate patch to prevent hackers from exploiting them.

Arnold says his department relies on the PoliVec scanner to locate holes and to enforce policies, such as making sure Win 2000 always has the security-event logging feature turned on. "PoliVec can go out and audit any given system for adherence to a policy," he says.

Policy-based management is cropping up in desktop-control software that can be centrally managed. Sygate Technologies last week announced Secure Enterprise 3.0, which adds intrusion-detection capabilities to client software that can already enforce use of antivirus software, a desktop firewall and VPNs.

"We just established a policy that all mobile [computers] must use the desktop firewall and a VPN to connect to the network," says Jim Kirby, senior network engineer for Wells-Dairy, a maker of dairy products in Le Mars, Iowa. Wells-Dairy is deploying PoliVec on 500 desktops. Kirby says top-level management decided to tighten up security policies because network-based threats are unpredictable and increasingly dangerous.

Policy enforcement also is on the mind of Zone Labs, which this week adds a way to enforce use of antivirus products from Symantec, Trend Micro and McAfee to its Integrity 1.5 desktop firewall.

Entercept, which makes server-based intrusion-detection software, is announcing Entercept 2.5, which includes a "vaulting" feature that can lock down specific operating files and settings.

In addition, nCircle plans to show off its IP360 Network Exposure Management system this week at the NetSec 2002 conference in San Francisco. The company's appliances can be laid across a network to detect the presence of, and analyze traffic associated with, operating systems, applications, routers and other IP-based equipment.

The goal is that by profiling every application and device in use, a company can identify vulnerabilities and determine whether any expose the company to unacceptable security risks.

The vendor has upgraded IP360 to include intrusion-detection support that would let an administrator set up rules for blocking traffic via the appliance or the corporate firewall.

This holistic approach to security from nCircle — pricing for the system starts at $100,000 — is used at about a dozen customer sites.

"We like the way it combines [intrusion detection] and a vulnerability scanner," says John Shields, vice president of e-business at Patelco Credit Union in San Francisco. "It maintains security and reduces costs, and helps us keep our patching up to date." ■

Security spending

Research firm IDC predicts $7 billion will be spent this year worldwide on security products, up more than $1 billion from last year. Spending is expected to grow an average of 20% per year through 2006.

Product	2001	Projected for 2006
Authentication, access and administration	$2.4 billion	$6.8 billion
Encryption software	$932 million	$1.7 billion
Firewall/VPN software	$1.8 billion	$4.3 billion
Intrusion-detection software	$227 million	$380 million
Secure content management	$593 million	$1.3 billion

Siegel

continued from page 16

give them the bandwidth that they've paid for.

The other area is in security. Anything that can be done in terms of firewall technology, filtering systems, virus detection, passwords and certificate-based security are areas we're very active in. Those technologies just need to keep developing.

What do you see as your major challenges related to network infrastructure, and how are you addressing these challenges?

With good security and good quality of service, the third issue I have is under control. And that third issue is that people's use of the network — the demand for bandwidth — is going up dramatically, especially as we move to more streaming types of services. People can easily overwhelm networks, and the current strategy is to use headroom to manage that. We recognize that people are willing to pay more for bandwidth, but they aren't willing to pay infinitely for it. Having excellent quality of service will allow users to say, 'Here's what I'm willing to pay for, and as long as I get what I'm willing to pay for, I'm happy.'

How do you balance the need for network security vs. the traditionally open computing environments found in academia?

Both the consistently increasing number of denial-of-service attacks and Sept. 11 have really changed our security strategy. We believe that everybody in the system has to become, reluctantly, more of an expert on computer security issues.

We're spending more money on security education and training. We're making sure that the system and network administrators are up to what we call 'certified standards' and that there are materials available to end users so that people have no excuse not to be up-to-date on their security technologies. We have very clear policies so that if somebody is unable — and this has happened — to keep their security up to snuff, we are now proactively taking them off the network rather than wait for the attack. Since Sept. 11, the enthusiasm from user groups that they'll step up to their [security] responsibilities is really significant.

Do you see the convergence of voice and data as having a potential for UIUC? Why or why not?

Convergence is one of my favorite subjects. Several years ago, I had a convergence development group at a prior institution, and we spent about a half-million dollars a year with the goal of creating convergence by the year 2000. We worked with vendors who said they would have that technology by the year 2000. But there were two problems with it. One was they had no accounting strategy. We have to know what people are doing, and we have to charge for those services. The other problem is that vendors didn't have technology that scaled. There are lots of things that will work with 2,000 or 6,000 people that will not work with 30,000 or 40,000 people.

The other issue with convergence is the costing model. When voice over IP was first suggested, the notion was that existing phone technologies were going to remain expensive and that the new technology would be lower cost. That costing model has not worked out at all. Our costs for telephone systems have been dropping quite rapidly.

But after saying all of that, my belief is that convergence is going to happen but not because it's cheaper — that was the wrong thing to focus on — but because the newer services that you can create are going to be so important to people. ■

Products advance on PKI, antivirus and IDS fronts

There's progress on the security front when it comes to intrusion detection, antivirus protection and digital certificates, according to several vendors in those arenas.

Internet Security Systems (ISS) last week announced shipment of its long-awaited RealSecure 7.0 intrusion-detection system sensor, which represents a rebuilding of its network-based IDS to more closely conform to the high-speed BlackIce product ISS obtained through its purchase of Network Ice last year. According to Dan Nadir, ISS product director, Version 7.0 comes in two models, either with Gigabit Ethernet-level throughput or as a 10M to 100M bit/sec sensor. Pricing starts at $8,000.

Two of the most influential vendors in the area of digital certificates, Baltimore Technologies and RSA Security, were getting out the word last week on updates for their public-key infrastructure (PKI) software packages. John Worrall, RSA's vice president of worldwide marketing, says the company has added components to its PKI management product that would let administrators issue Secure Sockets Layer (SSL) server certificates for use in encrypting a session or authenticating users.

This marks the first time RSA's software supports Microsoft and Netscape browsers, and "it's indicative of our focus on the Web and e-commerce," Worrall says. The cost of licensing RSA's SSL certificates costs $235 per server for an organization purchasing 100 to 200 certificates.

Baltimore Technologies released UniCert 5.0, a new version of its PKI software that can be used for workflow-based policy-driven certificate registration. "You can designate user groups to receive certain certificate types, such as VPN certificates," says Joyce Fai, Baltimore's vice president of marketing.

Baltimore, which is supporting XML Key Management-based PKI clients for use in XML-based Web services, also has added a mirroring feature to its certificate authority server to allow a certificate authority to be "cloned" when needed for critical high-availability use.

Also last week, Network Associates' McAfee division announced that its managed desktop antivirus service, VirusScan ASAP, now provides a way to automate virus-signature updates to desktops that might not have access to the Internet. McAfee is doing this with VirusScan 2.5 by letting a desktop that doesn't have access to the Internet — but is on a corporate LAN — be updated for antivirus protection by receiving updates from a desktop that gets the updates from the 'Net.

— Ellen Messmer

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Network connections

BUSINESS CONTINUITY:

Against All Odds

Strategies and Technologies for Staying Up and Running

A costly but necessary job
page 3

Integrate backup and recovery into overall plan
page 8

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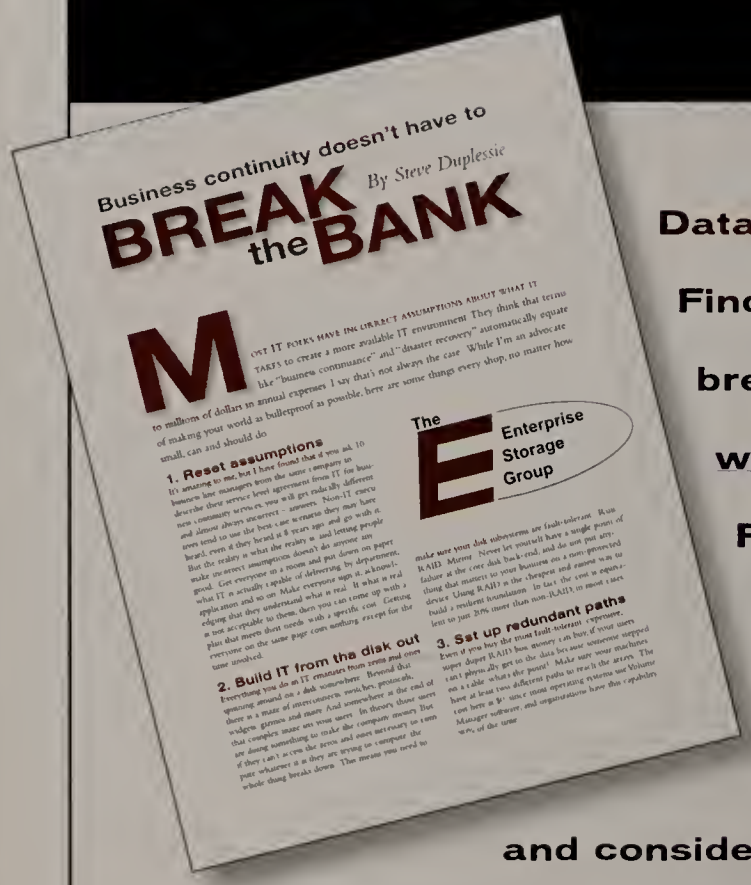

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Nobody Said It Was Going To Be FUN

Developing a business continuity strategy requires painstaking, detailed work and piles of of money—but can your business survive without it?

BY ALAN RADDING

The events of Sept. 11, 2001, confirmed that Pershing, a provider of securities processing and services, and a unit of Credit Suisse First Boston, was on the right track. Months earlier, it had engaged IBM to help with a major overhaul of its business continuity/disaster recovery capabilities. Pershing had established two data centers and installed data mirroring and data replication. "This cost a considerable sum of money, but after Sept. 11 we felt comfortable that we had the right solution," says Suresh Kumar, Pershing's CIO.

Developing a business continuity strategy requires painstaking, detailed work and the proverbial ton of money. While cost is always an issue, the detailed work is often overlooked—details about what hardware and systems you have; what systems and services you need to maintain at least minimal operations; who does what; where they are located; how to communicate with customers, providers, and employees; how to transport employees; and how to feed and house them in the event of an emergency. It also means establishing and maintaining a strong relationship with your key information systems vendors and communications providers, enabling you to call on them for replacement parts and alternate links.

"There isn't a lot of fun here," notes Larry Tabb, senior vice president/securities and investment practice at the TowerGroup, a research firm based in Needham, Mass. "Business continuity planning is tedious work. And trying to test the plan isn't fun either. You disrupt a whole lot of people who aren't happy about it."

GREGORY BENSON PHOTOGRAPHY

Suresh Kumar, CIO at Pershing, a Credit Suisse First Boston unit, says the company thinks it made the right choice in overhauling its business continuity/disaster recovery capabilities last year—even though it came at considerable cost.

GREGORY BENSON PHOTOGRAPHY

"There are regulatory reasons why we have to do it [invest in business continuity] and issues around data availability and data integrity." - Suresh Kumar, CIO, Pershing

But business continuity planning and the implementation and testing of those plans is necessary if the organization expects to survive an event like last September's terrorist attacks or even more mundane and less catastrophic disasters, such as fires, floods, and power line breaks.

A COSTLY BUT NECESSARY JOB

And implementing the resulting business continuity solution indeed can be expensive as Pershing discovered. It typically entails establishing multiple data centers, mirroring and synchronizing data copies, contracting with multiple telecom carriers, setting up redundant links, subscribing to a hot site, and testing all of these pieces. In today's tight economic climate, few clients are enthusiastic about committing scarce resources to something they hope they will never need.

But more events on the scale of 9/11 or worse are bound to happen, say pundits. In a piece widely published by Cable News Network and others, noted investor and insurance executive Warren Buffett, CEO of Berkshire Hathaway, Inc., was quoted by the Associated Press in May declaring: "We're going to have something in the way of a major nuclear event in this country. It will happen. Whether it will happen in 10 years or 10 minutes, or 50 years...it's virtually a certainty." Whether or not such a catastrophe ever takes place, there will surely be other disasters that strike, so organizations that hope to survive will need to plan and implement an effective business continuity strategy.

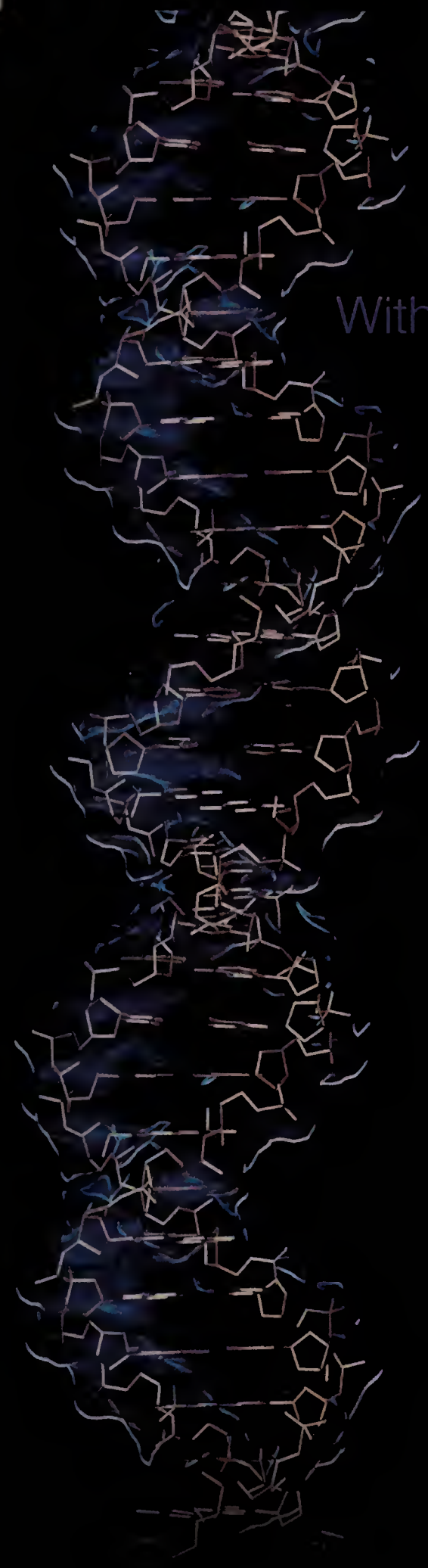
The cost of developing a business continuity strategy, however, presents a significant obstacle. "Many of our clients are small and simply don't have the budget," says Karl Compton, chief technology officer for Cierra Business Solutions, based in Houston

For Pershing, the big investment in business continuity caused some hesitation, but no one suggested they skip it. "There are regulatory reasons why we have to do it and issues around data availability and data integrity," notes Kumar. With $400 billion in customer assets to manage and 19 million securities to track, too much was at risk to not follow through.

"Business continuity is just very expensive," says Carl Greiner, vice president of data center strategies at Meta Group, Inc. in Stamford, Conn. "Who can afford secondary sites and assets sitting there doing nothing?" he asks.

Even large companies often lack a business continuity strategy. A recent study of Fortune 1,000 chief financial officers, treasurers, and risk managers across a broad range of industries by FM Global, a commercial and industrial insurer based in Johnston, R.I., finds more than 50% reporting that their companies are not well-prepared to recover from a major disruption to their top earnings driver, and less than 25% of respondents believe their current contingency planning efforts are adequate. More than 75% of the nearly 200 respondents indicated such a disruption either would cause sustained impact to their firm's earnings or threaten their business continuity.

Prior to last fall's terrorist attacks, simply backing up data, storing it off site, or arranging for an emergency hot site—basic IT disaster recovery—seemed adequate. For many companies the worst scenario imaginable was a hurricane that could be predicted a few days in advance, providing ample time to shift to the backup or hot site. The knowledge we



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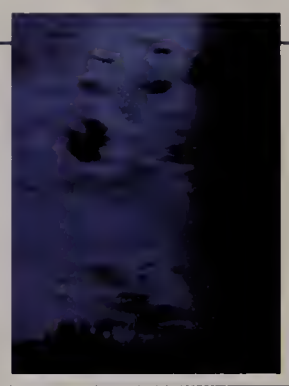

"Business continuity planning is tedious work. And trying to test the plan isn't fun either. You disrupt a whole lot of people who aren't happy about it."

—Larry Tabb, senior VP, TowerGroup

have today, though, about what's possible, has elevated the profile of business continuity and shifted the emphasis from basic IT disaster recovery—ensuring the availability of information systems and data—to the preservation and continuation of key business processes, operations, and communications.

"Following 9/11, people couldn't get to their offices. In some cases there were no offices to go to," says Tabb. Nor could employees get to hot sites because transportation was disrupted. As a result, managers now realize the business continuity strategy has to be broader than simply the availability of data systems; maintaining business communications and operations becomes as important as IT systems availability.

DON'T RELY ON SINGLE SITE

Sept. 11 also revealed the weakness of the single, central facility. Centralization strategies are now out; instead companies are spreading people among a number of facilities and using multiple carriers, the Internet, and cellular phone networks to try to maintain some level of communications.

Pershing adopted a two-site strategy. The workforce is split between the two data centers about 35 miles apart. The company's Internet-based business is spread evenly between the two sites, while the second site also acts as a backup for the primary data center's mainframe. In the event of a disaster that shuts down one site, the company can shift to the remaining data center and resume operations in less than four hours, Kumar estimates.

For his small clients, Compton often recommends some form of outsourcing with a hosting company, which also plays a central role in the business continuity strategy. "We moved a small hedge fund's financial trading systems to a hosting provider. Business continuity then becomes the problem of the hosting company," he explains. The client, however, isn't off the hook completely. It continues to manage the systems remotely and keeps the systems it previously used on site just in case. "If the hosting company has a problem, they can fail back to their own office," he adds.

"The new mantra of business continuity is dispersion, redundancy, and alternatives," says Tom Friedman, publisher of *Retail Systems Alert,* in his upcoming report, "Crashproofing the Supply Chain for the Post-September 11th World." The report encourages retailers and suppliers to disperse their systems and people among multiple locations. For communications, Friedman's report notes: "A lesson learned from 9/11 is that the Internet was the one network that was not disrupted, although in many cases access to the Internet was broken due to local telephone service disruption. This was generally not the case, however, where organizations had direct linkage to the Internet and used Internet Protocol (IP) for their communications pathways."

Cellular phone networks, on the other hand, quickly became overwhelmed in impacted areas, adds Michael Morganti, FM Global's manager of customer training, who holds certification as a Master of Business Continuity Planning from the Disaster Recovery Institute International in Falls Church, Va.

Although floods, fires, power outages, and human errors remain the most common threats, there is now increased awareness of new types of threats—whether suicide bombings, nuclear sabotage, letters laced with anthrax, or gunmen stalking the hallways. "People are now taking threats extremely seriously," observes Pershing's Kumar.

Given the current financial uncertainties, Compton also sees the financial failure of service providers as a risk. He advises his clients to pick hosting companies, ISPs, and ASPs with great care and make contingency plans in the event their ISP or hosting provider fails. Although this threat seems modest compared with the threat of terrorism, it is by no means trivial. Compton's small hedge fund client, just like big investment firms, doesn't have to lose its high-speed network access for very long before millions of dollars of its clients' money and the fund itself are in grave danger.

For all companies, the stakes are high. Thirty percent of companies that suffer a catastrophic disaster—fire, flood or earthquake—never reopen their doors, according to Meta Group. An additional 29% close within two years after the disaster. Companies deprived of their key computer systems for 10 days cannot recoup the financial damage, and 50% of them will go out of business within five years. The solution, the researchers conclude, is to have a credible business continuity and disaster recovery strategy—one that is up-to-date, tested, and effective.

Alan Radding is a freelance writer based in Newton, Mass. He can be reached at alanradding@attbi.com.

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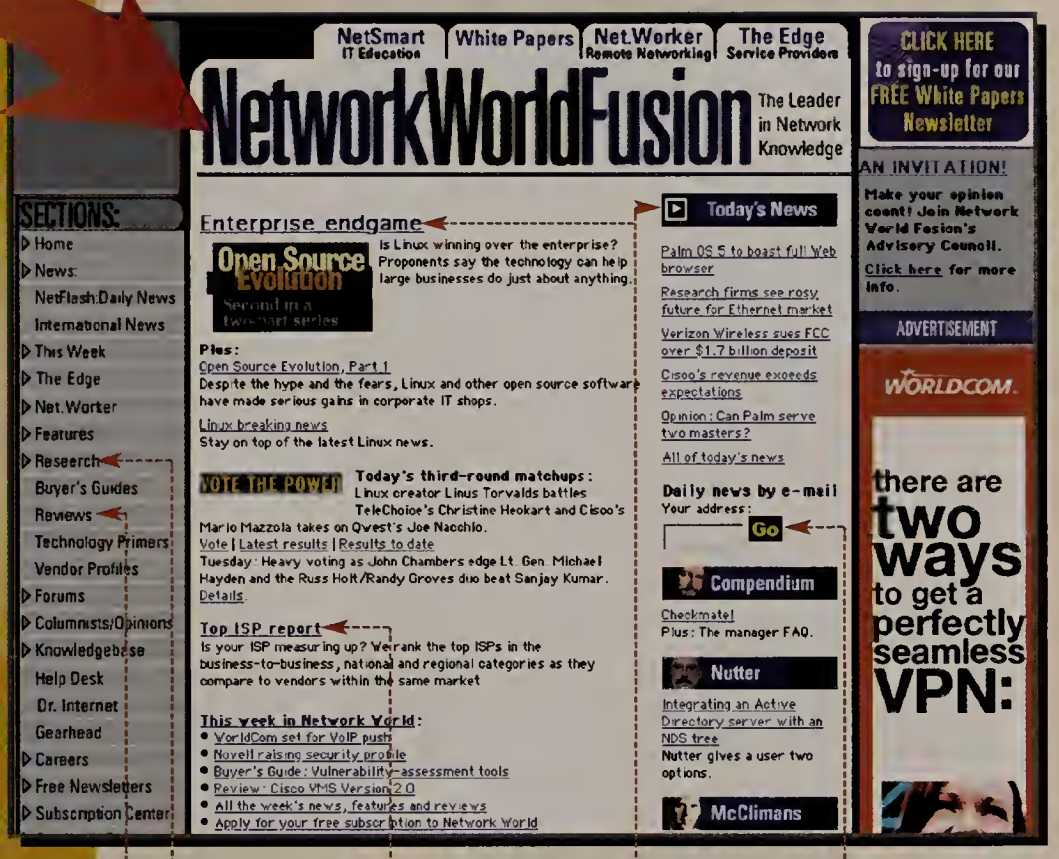

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Mindset Change

Companies are now viewing backup and recovery as integral parts of the business continuity planning process. And data that used to be thought trivial is increasingly becoming mission critical. New technologies help fill the gap.

BY DAVID KELLY

Contrary to what you might think, the biggest development in storage strategies and business continuity doesn't have to do with hot new technologies or innovative new products. Rather, it has to do with perception.

"There's really been a mindset change," says Phil Wilkerson, program director for Storage Infrastructure at the Meta Group, Inc., in Stamford, Conn. "People are realizing that the cost of downtime greatly exceeds the cost of storage infrastructure." So instead of simply creating disaster recovery plans to make sure that business-critical data moves to tape and that the tapes are archived safely off-site, companies are now viewing backup and recovery as an integrated process that's an integral part of business continuity planning. As a result, many are replacing or extending traditional tape backup systems with disk storage strategies.

Fueling this change in perception are both fundamental business changes and developments in storage technologies. As the volume of information that organizations need to archive disaster recovery and business continuity has skyrocketed, backup tape technology has not kept pace. According to Meta Group, while storage needs have roughly doubled every year, tape throughput is doubling only every 18 to 24 months. The result is that tape archiving (and restoration) can no longer keep pace with business needs for fast restores.

NEW STORAGE TECHNOLOGIES

Stepping in to fill that gap, however, are a range of new storage technologies.

"As companies search for ways to prevent or at least minimize the effects of a system outage, they are turning to storage area networks (SANs)," says Vaune M. Carr, business continuity practice leader for Sprint E|Solutions. SANs are high-speed subnetworks of shared storage that are typically accessible to all servers on a network. Some organizations are now using SANs

configured for high availability with Fibre Channel to minimize the risk of a single point of failure. According to Carr, SANs can also isolate the storage of critical data from applications and servers, making it easier for organizations to adopt new storage technologies and products as they become available, increasing availability and security.

Another change many companies are taking in their storage and business continuity strategies is to implement a tiered structure of backup and recovery:

- **Snapshots** – By using new storage solutions that can take "snapshots" of data and files at a single point in time, organizations can easily recover from basic problems, such as when a user deletes a file, or a database drops a table. However, these types of solutions don't protect against physical errors or damage.
- **Mirrored data** – According to Meta Group's Wilkerson, mirrored data technologies are the next step that organizations take, creating distinct physical storage systems that mirror the primary data, allowing them to restore terabytes of data in minutes if there's a problem. However, this doesn't protect against disasters that take out a complete site.
- **Remote replication** – More and more IT organizations with multiple locations are starting to use data replication to leverage those remote sites for business continuity, using specialized software and storage hardware to ensure key applications and data are replicated across the sites. This step provides continuity even when complete locations are taken off-line.

Furthermore, the definition of what's mission critical has changed dramatically over the past few years, adding to the amount of information that needs to be included in your business continuity plans. For example, until recently, most companies considered only traditional transaction data—such as orders, invoices and accounting records—as important

GREAT EXPECTATIONS:

DISASTERS HAPPEN!

	NORMAL SITUATION	DISASTER RECOVERY SITUATION
TIME DOWN	• Minutes per year	• Hours or days per event
INFRASTRUCTURE THREAT	• Disk failure • Network congestion • Application performance	• Earthquake • Blizzard • Fire • Flood
WILLFUL THREAT	• Computer viruses • Hacking	• Disgruntled employee • Terrorist attack

SOURCE: ABERDEEN GROUP

"There's really been a **mindset change**. People are realizing that **the cost of downtime** greatly **exceeds the cost** of storage infrastructure."

—Phil Wilkerson, program director, Storage Infrastructure, Meta Group

enough for inclusion in their disaster recovery/business continuity strategies. But think how much you rely on email. What would happen if your email systems and recent email history were wiped out because of a disaster? If your company is one of the many that now considers email a critical component of its corporate information system, then it simply can't be left out.

"Previously, 'mission critical' was defined in terms of what applications and information could not, under any circumstances, be lost," says Steve Higgins, Business Continuity Manager at EMC. "Now, 'mission critical' has been redefined and broadened to include the applications and information necessary for a company to be back up and running immediately. Applications such as email have become 'mission critical' based on their necessity for a business to run."

Organizations should evaluate their data recovery and replication needs based on a hierarchy of importance such as the following:

- **Mission-critical data**—Information (such as order processing data and applications) that is crucial to an organization's fundamental ability to do business, and something you might want to restore in two to four hours.
- **Organizational critical**—Data and applications that are important but can be restored later—say, in 12 to 24 hours. This might be a back-end accounting system.
- **Operational data**—Operational data is important to the running of the business but can wait some number of days before being restored. In some companies, for example, inventory information would fall into the category of operational data.

When establishing your business continuity plans and storage strategies, experts recommend you include a long-term recovery plan in case the original site is unrecoverable or stays off-line for months or years. This means having a plan in place to enhance the replication or backup site's storage (as well as other) capabilities, or having an alternative site that can be built out quickly.

With the range of storage options available today, and new backup, recovery, and SAN management tools becoming available all the time, organizations have the opportunity to create a unified backup/business continuity strategy rather than standalone solutions for each application or data set. As Sprint's Carr notes, "Organizations should be aware that they can now have one backup strategy with "all types" of data (vs. just traditional "mission-critical" information) and do it cost effectively."

David Kelly is a business and technology writer based in West Newton, Mass.

The High Cost of Downtime

Industry	Revenue/ hour	Revenue/ employee-hour
Energy	$2,817,000	$589
Telecomm	$2,066,000	$187
Manufacturing	$1,610,000	$134
Finance	$1,495,000	$1,079
Info Tech	$1,344,000	$184
Insurance	$1,202,000	$370
Retail	$1,107,000	$244
Pharmaceutical	$1,082,000	$167
Chemicals	$704,000	$194
Transport	$668,000	$107
Utilities	$643,000	$380
Health Care	$636,000	$142
Media	$340,432	$119
Retail	$1,107,000	$244

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5 cool things to do while you wait for a disaster to hit your company.

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3. Shorten backup windows.
4. Refresh data warehouses.
5. Take a whole hour for lunch.

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Short Takes

■ **IBM Research** last week announced what it says is a breakthrough in data storage using nanotechnology that lets a trillion bits of information be packed into a square inch, the equivalent of about 25 million printed textbook pages on a postage-stamp-size surface. The system — code named **Millipede** — does away with magnetic or electronic means of data storage. Instead, Millipede uses thousands of sharp molecular-size tips to punch indentations representing individual bits into a thin plastic film. The indentations are just 10 nm in diameter. While resembling a tiny punch-card system, the Millipede indentations can be erased and rewritten a number of times — tests have involved hundreds of thousands of write/erase cycles, IBM said. Millipede technology, developed at IBM's Zurich research laboratory, could begin replacing silicon-based flash memory cards in handheld computers and mobile phones by the end of 2005, but IBM says it has not yet decided on plans to release products based on the Millipede technology.

■ Meanwhile, **IBM** rolled out two new Intel Pentium Xeon-based servers last week — one a dual-processor Intel Xeon server for small and midsize businesses; the other, a four-processor server. The two-processor **IBM eServer x235** is designed for file and print operations, and e-mail and collaboration applications. The x235 is tower-based and includes a dual, integrated Ultra320 SCSI controller, allowing disk mirroring for fault tolerance. The server also includes two Active PCI-X slots, which improve data transfer speed and eliminate bottlenecks. IBM also introduced the xSeries 255 tower server. It supports up to 880G bytes of internal storage. The box has Hot Spare Memory Protection, which protects the server from memory failure. Both servers support Linux or Windows and are expected to ship by the end of the month. The IBM eServer x235 starts at $3,700; the x255 starts at $7,200.
www.ibm.com

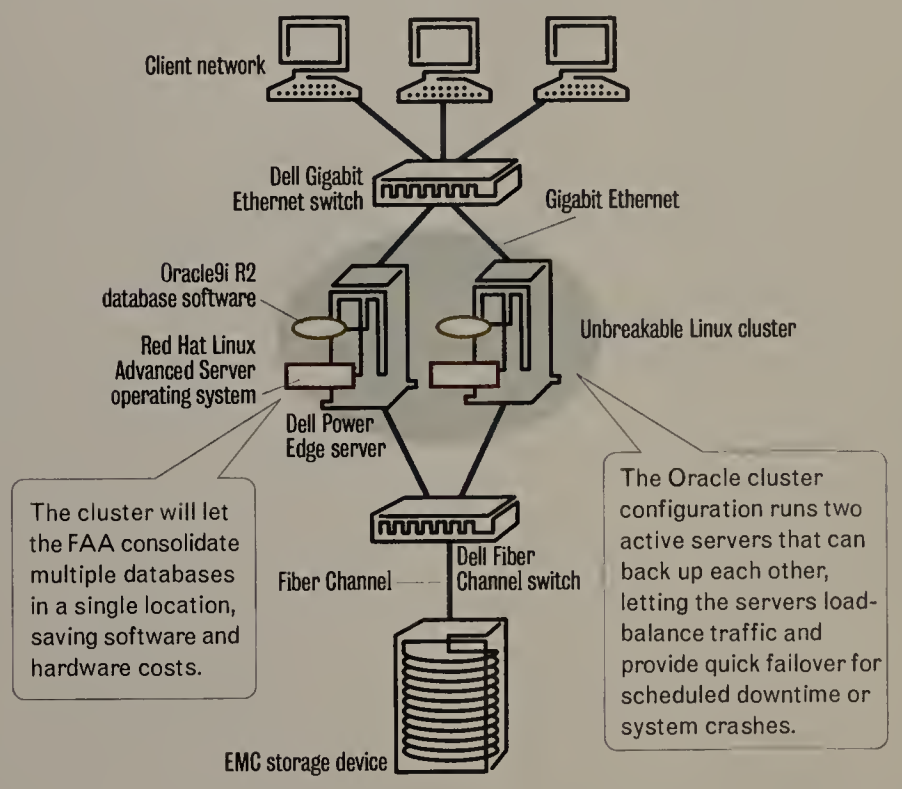
Linux clusters: Can't bust 'em

FAA is among adopters of latest Dell/Oracle/Red Hat technology.

■ BY PHIL HOCHMUTH

Linux takes flight

With an eye toward boosting uptime and reducing costs, the Federal Aviation Administration deployed a two-node database cluster built on recently announced Unbreakable Linux technology.



While last month's UnitedLinux announcement — in which TurboLinux, SuSe and Caldera agreed to join forces — jolted the open source software market, the recent Unbreakable Linux release from Dell, Oracle and Red Hat may make more of an immediate splash with enterprise-class customers.

Vendors behind the Unbreakable Linux effort say the product combination could help businesses and organizations looking to consolidate Unix databases in data centers, and they say they have real-world deployments to prove it. Analysts say the idea of Oracle on Linux is sound, but uptake has been slow by customers.

The Unbreakable Linux announcement involved the debut of Release 2 of Oracle9i Real Application Cluster (RAC) for Red Hat Linux (Unix and Windows support is to come later this year). As part of the Unbreakable Linux product push, Dell is certifying configurations of Oracle9i RAC and Red Hat Linux Advanced Server across its server line and will sell the product bundle, starting at about $12,000. All three companies are combining support efforts to help customer rollouts and maintenance contracts, with Dell being the primary support source for the products.

The Dell servers running Oracle and Red Hat could let a database or many databases be distributed across two or four multiprocessor nodes. This lets information from the database be extracted more quickly and also provides database access to clients in case one of the cluster nodes fails or drops off the network.

The Federal Aviation Administration (FAA) recently deployed an early-release two-node cluster built on Unbreakable Linux technology at its headquarters in Virginia. The cluster is used to support air traffic control applications such as a centralized information logging system. The cluster also runs a capacity management application and a program for distributing severe weather rerouting information.

One of the main goals of the Linux initiative at the FAA is to do more with less, says John Kelly, project manager and senior database administrator for Kenrob and Associates, a Virginia technology contract for the FAA.

"What we're trying to do is have a lot of

See Linux, page 23

Polycom and PictureTel: Acquisition yields results

■ BY JASON MESERVE

In the year since it acquired PictureTel, Polycom has padded its already wide lead in the videoconferencing market and become one of the leading providers of audio, video and data communication products.

The company's ViewStation videoconferencing appliance is the leader in the group (small conference room) videoconferencing market. And with the addition of PictureTel's iPower PC-based video endpoints, the company has a 64% market share in terms of units shipped, according to first-quarter 2002 numbers from Wainhouse Research. Tandberg runs a distant second with an 18% share. Third-place Sony sells most of its products overseas. Polycom also enjoys a 57% share of the small personal videoconferencing market — not bad for a company that entered the videoconferencing arena in 1998.

The $362 million PictureTel buy last year gave Polycom access to PictureTel's iPower Series of PC-based videoconferencing units, better audio codecs and a larger service organization. For PictureTel, it means a stronger and brighter financial picture after losing more than $44 million in the first three quarters of 2001.

While the PictureTel acquisition closed in October 2001, the companies are still in the process of combining workforces and product lines, and embedding each others' technologies in their products. The mix is happening more quickly on the

See Polycom, page 24

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COMMUNICATION WITHOUT BOUNDARIES

Rainfinity wares prevent network failures

■ BY JENNIFER MEARS

SAN JOSE — Rainfinity last week unveiled updates to two products that they say will give customers an easy, cost-effective way to protect against network outages, not only within a data center, but also across remote locations.

The releases, RainWall 3.0 and RainConnect 3.0, are designed to be deployed in hours, requiring no network configuration changes. Each includes a Web-based management console that lets users monitor the products from any browser-enabled device.

RainWall, software that is deployed in conjunction with a firewall or VPN, provides high availability and load-balancing for firewalls and VPN gateways by intelligently routing traffic among clustered deployments. RainConnect, software that is deployed on a server running a firewall or its own dedicated server, protects the integrity of Internet connections, directing traffic to the most appropriate link among multiple ISPs.

RainWall 3.0 lets businesses load-balance traffic among firewalls in one data center, and across remote locations. So if a branch office with no IT on-site experiences a failure, RainWall directs traffic to an operating firewall or VPN connection elsewhere in the network.

"IT receives a notification of the failure, but they don't have to rush out there and fix something. The other nodes will continue to pick up traffic and continue to give them access," says John Schroeder, vice president of marketing and business development at Rainfinity.

Companies can prioritize where RainWall should send failover traffic first, to a local connection, for example, before a remote location. Other new features in RainWall 3.0 include tighter integration with RainConnect and tighter integration with Check Point Software VPN and FireWall products. The Check Point integration lets users configure RainWall by extracting policies from Check Point gear. RainWall's status also can be viewed from the Check Point management console.

Bob Lowe, director of professional services at Tolt Technologies, a systems integrator for automated data collection in Gig Harbor, Wash., says he was looking for a way to make sure his company's five branch offices stayed connected.

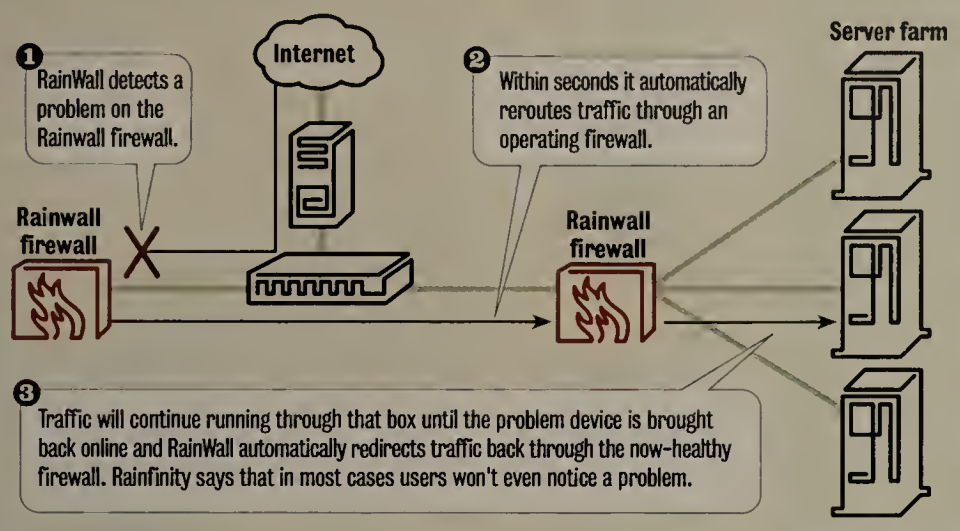
"We wanted to make things redundant, and we were also looking to increase the speed without having to go to a full T-1," he says. Lowe estimates the company will save as much as $1,500 per month by going with RainConnect, which lets it use two DSL lines, rather than having to lease a T-1.

Rainfinity competes with companies such as StoneSoft on the software side, and firms such as F5 Networks and Radware on the hardware side.

Both products are available. RainWall starts at $13,500 for a two-node cluster on Check Point. RainConnect starts at $6,000. ■

Singing in the rain

Rainfinity's RainWall software protects against hardware or software failures among clustered firewalls or VPN gateways. Here's how it works:



Linux

continued from page 21

smaller to midsize databases out there, which run on a lot of smaller [Unix] machines, and have them run on one centralized database," Kelly says. "Centralizing our databases lets us do less work," which saves the FAA on administration costs. The total cost of ownership is also less, he adds, because the Intel-based hardware the cluster uses is less expensive than Hewlett-Packard or Sun boxes used previously.

Kelly says the high-availability features of the Dell/Red Hat/Oracle cluster were the main selling point for the system.

"One of our requirements is that these applications can't have downtime," Kelly says. The Oracle cluster configuration runs two active servers that can back up each other, letting the servers load-balance traffic and provide quick failover for scheduled downtime or system crashes. He says this configuration is superior to other server-based database products "where one database is doing nothing, waiting for the primary to fail. Here, we're making the most use of our resources."

Kelly says the FAA is looking to consolidate more databases into the cluster and plans to increase the Oracle cluster size to the maximum of four nodes.

Internal support and security were issues of concern for the FAA when choosing Linux, Kelly says. While some management tools and resources for supporting Red Hat are not as slick as the company's old HP or Sun Unix environment, this was not a hindrance overall.

"When you get into Linux, it's a little less structured, but it's pretty much Unix," he says. As for security, the FAA disabled many of the nonessential services that run on Red Hat Linux, which could pose potential security breaches, such as FTP or script support. Kelly says the FAA also runs regular security audits on its system and that the cluster itself sits behind firewalls, with no connection to a public network.

Possibly lost in the Unbreakable Linux hoopla was the unveiling of Oracle's new database product, Oracle9i Release 2, which adds several new features to Oracle9i platform, released last year.

One feature of Release 2 is XML DB, which lets XML components be stored in a relational database table and accessed via SQL. This could help businesses that want to deploy Web services based on XML technology that taps into corporate data stores. A new Data Guard feature lets a "hot standby" database be set up remotely for creating logs and reports, or for backing up a primary database. Other features include enhanced Java APIs and data-mining capabilities for the database.

Linux could be the right springboard for getting these new features into customers' hands, says Mike Shiff, vice president of e-business and business intelligence at Current Analysis.

"Oracle is taking Linux very seriously and is aggressively moving to be the database of choice on that platform," Shiff says. Oracle's push into the Linux market also differentiates it from leading rival Microsoft and its SQL Server, which won't be ported to Linux anytime soon, he adds. "Linux has a lot of momentum right now; [by partnering with Linux and Dell] Oracle is looking to hitch itself to a race car." ■

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COMMUNICATION WITHOUT BOUNDARIES

WIRED WINDOWS

Dave Kearns

Let technology experts control technology

Hardware and software decisions are too important to be left to the mercies of nontechnologists.

Frightening examples are everywhere from the federal government's problems with the Microsoft antitrust trial to the California state government's inability to understand how to purchase database software (see www.nwfusion.com, DocFinder: 9831). In this deal, the state's technology office created a 10-year plan to make Oracle the approved state database system. Naturally, offices currently using some other database system objected.

While the California controversy is mostly about accountants bashing accountants, we've now got "consumer watchdogs" jumping on the bandwagon of government as the best arbitrator of technology. And not just any consumer watchdog, no sir. Ralph Nader, the godfather of consumer watchdogs, has weighed in on the subject of technology and public policy.

In a letter to the federal Office of Management and Budget (www.nwfusion.com, DocFinder: 9832), Nader requests that "dominant software providers" be required to ". . . make their source code public, in order to enhance interoperability with products offered by smaller competitors." (Know what an API is, Ralph?)

Nader also wants the government to require vendors of "dominant office productivity tools, including word processing, spreadsheets and presentation graphics" (gee, who makes a package like that?) . . . "to provide high-quality ports to other operating systems, including platforms such as Linux or the BeOS." (Do you suppose Sun will port StarOffice to Be?)

Nader also wants the government to consider "buying outright the code for office productivity products and releasing that code into the public domain."

The government has been involved in trying to steer the course of technology before, even computer technology. At one time, the government even tried to tell programmers which computer language to use to create software for the government. Remember ADA? Some of you may have studied it in school, but have you used it lately? Of course not.

Software and hardware purchases should be made with an eye to their effectiveness as a computing platform, not as a way to control business culture. Combine Nader's federal effort to limit the use of Microsoft software with the California effort to remove Oracle from the state's use, and we might be limited to using paper, pencils and an abacus to do calculations and store data. Is that really where we want to go? Let your government representatives know how you feel.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@quill.com.

Tip of the Week

If, like many in the U.S., you don't know who your **congresspeople** are, you can go to www.nwfusion.com, DocFinder: 9833, and enter your ZIP Code. You'll get all the information you need to contact your representatives and senators — including an e-mail link!

Polycom

continued from page 21

operational side of the house than on the technology side. Polycom has reduced its staff at PictureTel's former headquarters in Andover, Mass., from 415 to 250 people, with most of the reductions coming in redundant positions. Polycom also combined PictureTel's manufacturing facilities with its own offshore third-party manufacturer in an effort to save money. The company is looking to move out of its massive Andover facility or at least sublease some of the space to save even more.

The integration of assets and technology is complicated because Polycom acquired four other companies in 2001, including Accord Networks, which makes network technology for connecting multiple videoconferencing endpoints into one call. The acquisitions expanded Polycom's staff from 526 to 1,296 in 2001.

"We've got a big transition under way," says Mike Tuchen, vice president of Polycom's Austin, Texas division. "We're moving from an individual product company to a solutions company."

Instead of just selling a videoconferencing endpoint through a channel partner, Polycom now can provide the endpoint, management software and hardware for connecting multiple endpoints into one call, and offer its original audioconferencing product line. The PictureTel acquisition adds years of videoconferencing technology development and a much broader services reach.

"The transition has been smooth, but we're not reaping all the benefits yet that you want to see from integration of systems," says Christopher DiFiglia, associate director of IT at Bear Stearns and vice president of Polycom's User Group. "We would like to see [Polycom take] advantage of the various organizational strengths."

DiFiglia, a long-time PictureTel user, would like to see PictureTel's 14-KHz audio technology, Siren14, integrated into the Polycom ViewStation family of set-top appliances and Accord multipoint control units (MCU) and gateways. Currently, the only way to take advantage of the Siren audio quality is to make a point-to-point call between two iPower video endpoints. Multipoint calls using an Accord MCU or between an iPower and ViewStation use a lowest-common-denominator quality of audio, around 7 KHz.

Other features DiFiglia would like to see implemented are far-end camera control between endpoints using the H.323 standard for IP videoconferencing and better native data collaboration between endpoints. "We're starting to see the benefits and over the next six months I hope to see more," DiFiglia says.

Polycom has taken advantage of the better video encoding technology used in the PictureTel iPower series by integrating the same codec into its ViaVideo personal conferencing unit. "We were able to take advantage of years' worth of work by [the Andover group] and plug it into ViaVideo," Tuchen says.

Before the acquisition's completion, PictureTel shed its conferencing service provider business by selling it to ACT Conferencing. It also discontinued its less successful SwiftSite and Concorde product lines, betting its future on the PC-based iPower family and its global services business. Polycom has not buried the PictureTel products. The ViewStation and iPower series get equal billing on the company's Web site.

"Both product lines help the company," says Andy Nilssen, partner and analyst at Wainhouse Research. "If a customer wants a PC or appliance, Polycom has both."

Like DiFiglia, Nilssen says the combination of the companies has gone smoothly to date, but that there is still a lot of work to do in terms of integrating products. He would like to see more integration between Polycom's videoconferencing management software and the PictureTel iPower endpoints.

One of the biggest challenges facing the company is mixing the cultures of four major locations around the country and combining its acquired assets. With headquarters in Milpitas, Calif., video groups in Austin and Andover, and a network systems group in Atlanta, cultural differences are bound to crop up.

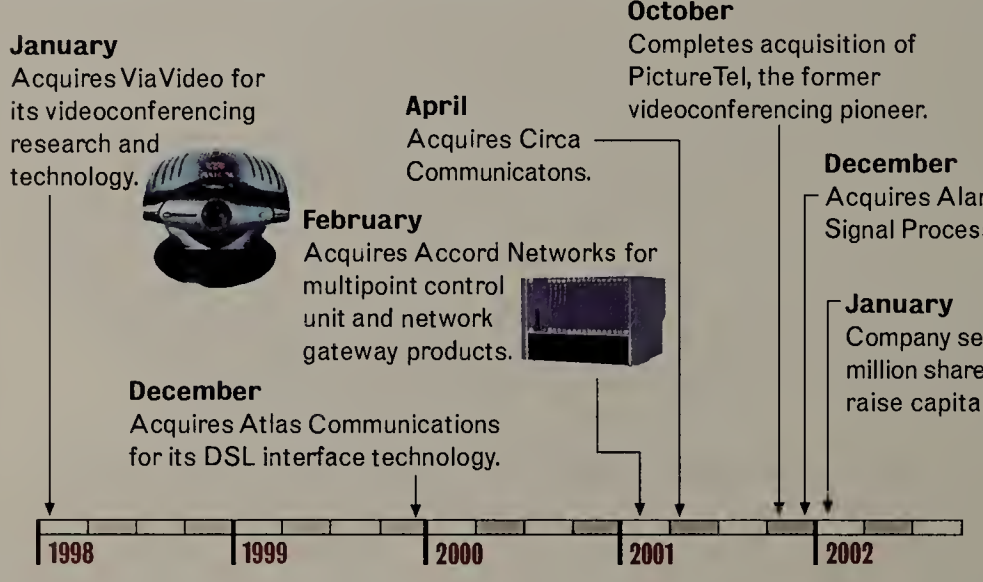
"The PictureTel folks have experience with a $400 million to $500 million business across multiple units and that's what this business is doing now," says Geno Alissi, general manager of the Andover division. "We bring that experience to the table, while Austin brings the entrepreneurial group."

Meanwhile, Tandberg is looking to capitalize on Polycom's growing size and product lines by offering a line of products that uses the same software throughout. "They've got three software streams for three different product lines," says Andrew Miller, CEO of Tandberg. "We're sticking with a single line product that fits the same software."

Miller says Tandberg also is focusing more on the high-end boardroom and large conference room systems that require a higher degree of custom design, whereas Polycom focuses more on the channel market. ■

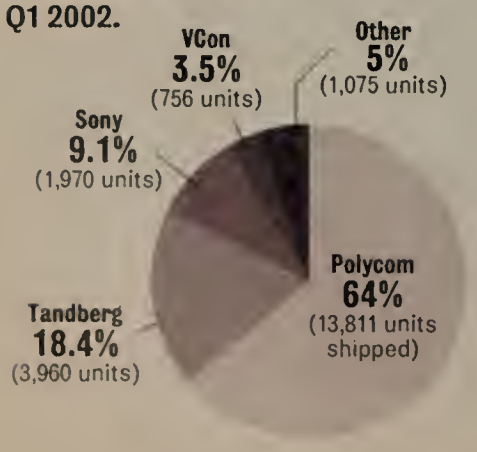
Expansion by acquisition

Over the years, Polycom has used acquisitions to boost its video network gear and PC-based videoconferencing equipment.

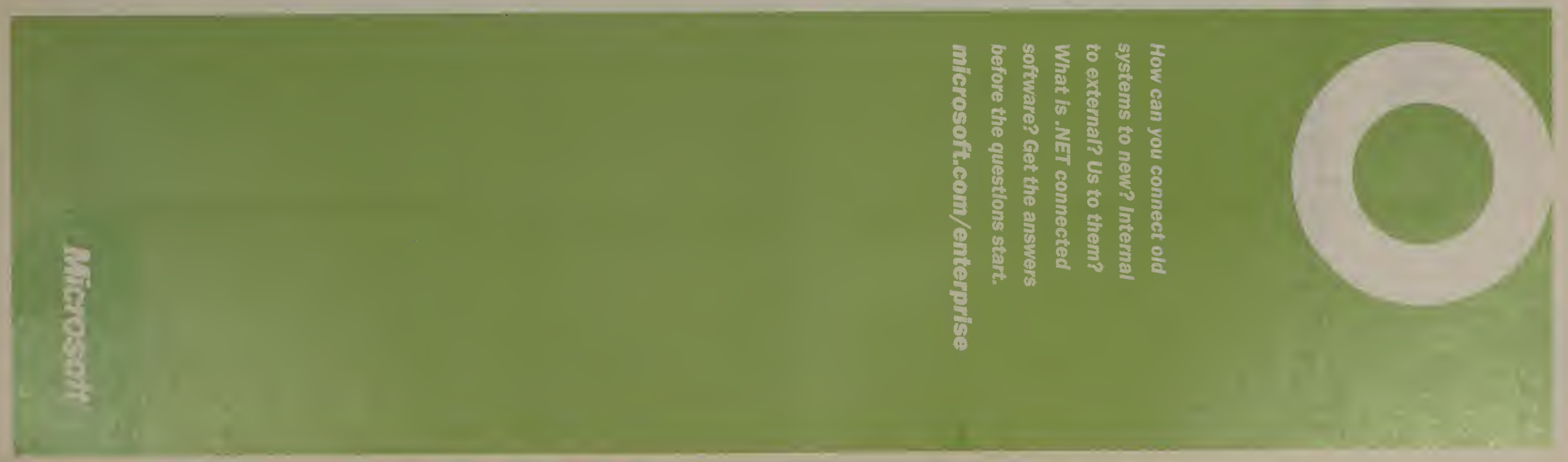


Leading the field

Polycom dominates the group videoconferencing market in Q1 2002.



1° of separation between their Q's and your A's.



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Enterprise Applications

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Symantec locks down managed security

■ BY ELLEN MESSMER

SAN ANTONIO, TEXAS — Symantec's security operations center in San Antonio marches to a decidedly military beat.

First off, the specialists hired to remotely watch customer networks day and night for signs of attack are, for the most part, hired directly from the U.S. Army or Air Force.

"That's because these people are used to shift work and are diligent at staring at a screen when a new threat is evolving," explains Charlie Johnson, vice president of Symantec's security services. Johnson, who heads up Symantec's security operations centers in the U.S., Europe and Asia, has had a long career battling Internet cyberassault. Until a few years ago he was operations superintendent at the Information Warfare Center at Kelly Air Force Base, where the U.S. plots its cyberdefense strategies, before retiring as a 20-year Air Force veteran.

Johnson's mission now is to expand the operations of Symantec's managed security services, which he's undertaken with Craig Robinson, vice president of Symantec's managed security services.

Robinson is former CIO and president of Trident Data Systems, which for a decade provided information security services to the Department of Defense and intelligence agencies. Trident was acquired four years ago by Veridian, the San Antonio security firm that went public recently with an IPO valued at more than $200 million.

Charlie Johnson (right) directs the security operations center at Symantec (above).

After the stint at Trident, Johnson and Robinson went into business by co-founding Secure Network Consulting (SNC) with two other colleagues. In a year of fast-paced acquisitions, SNC was snapped up by Axent Technologies, and Axent by Symantec two years ago.

At that point, Symantec, which sought to reach beyond its antivirus software focus to provide a wider array of security equipment and services, tapped Johnson to help Symantec expand into what was a new line of business: managed security services.

"Axent, before Symantec bought it, had a foothold here monitoring firewalls and Web servers for customers," Johnson says about the Austin, Texas-based operation, which occupies a floor in a high-rise office building on the outskirts of San Antonio. "The European division of Xerox was one of the early customers."

While Symantec's managed security services division is still fairly small — with about 300 people — it's growing steadily. Later this month, Symantec will open a new security operations center (SOC) in England. It's an underground bunker that was used by the British from World War II until the mid-1980s. It has high-speed telecommunications and microwave links connecting it to the outside world. Baltimore Technologies used it for secure digital certificate management before abandoning it.

"It's completely underground with grass growing over the top of it," Robinson says. "All you can see is an open meadow and cows." Symantec chose the bunker network center because "a lot of European clients were saying we need the assets to be survivable," Robinson says.

Symantec found the primary reason for building SOCs in foreign countries is because of language and business management concerns, not technology reasons.

"German companies want the SOC in Germany," Johnson says. Redundancy and back up are central concerns for all.

To communicate effectively with customers, Symantec asks all customers to make use of videoconferencing systems so the customer's staff and Symantec staff can interact effectively for morning meetings.

"If you have an incident and need to walk them through it, you want to bring up the video and see how panicked they are," Johnson says. If a hacker can be pinpointed and prosecution is warranted, Symantec works in partnership with PricewaterhouseCoopers to capture forensics evidence and pursue a chain of evidence that can be used in court.

Co-relating events

Pinging, probing and denial of service (DoS) are the kinds of attacks that Symantec security specialists observe hour after hour as they peer into their screens behind a glass-enclosed wall at the Sym-

See Symantec, page 30

Short Takes

■ **Waveset Technologies** last week announced the second version of its server-based provisioning product **Lighthouse,** adding greater flexibility to the role-based identity management software. The software is used to automate approval and allocation of user access privileges to databases, enterprise resource planning systems, mainframes and servers from a central point. Lighthouse Version 2 for Windows NT, Unix or Linux, can be customized so that business managers can have delegated authority to add some users' privileges that might fall outside the usual workflow controls. Lighthouse starts at $250,000. www.waveset.com

Keynote watches Web site performance

■ BY DENISE DUBIE

SAN FRANCISCO — Users looking for help integrating their Web site performance data into their existing network management software might want to check out a couple of new services from benchmarking vendor Keynote Systems.

At its third annual Global Internet Performance Conference, Keynote last week introduced two services — Data Pulse and SNMP Adapter — that will quickly incorporate Web site performance data collected by Keynote into customer third-party management systems. Keynote services feature software agents that check for troubles based on user-defined frequencies and thresholds, which users customize to their Web sites to show whether service-level agreements are being met.

Keynote deploys traffic-generating agents across the Internet that simulate end-user interaction with any Web page. The data collected can tell customers how well their Web site performs and expedite problem resolution, the company says. Data Pulse customers sign up with Keynote to have data collected from the agents delivered directly to an internal database or network management system for Web site performance trending or capacity planning.

Keynote says Data Pulse will eliminate the need for customers to write code to integrate Web performance data into their existing network packages. Keynote SNMP Adapter will notify network administrators of potential problems through SNMP alerts, the company says.

Industry watchers say by providing data integration, Keynote makes work easier for network managers.

"Integration between management tools is a very important issue for IS operations managers. Keynote is making it easier for them," says Bill Gassman, an analyst with Gartner. He says the Web site performance can be directly related to network issues. Having data on the availability of a Web site alongside the network performance, for example, will serve to quickly determine the cause of problems.

With SNMP Adapter, customers install an appliance in their network that converts the Web site performance data collected through its service into SNMP, a language that lets network devices speak to each other. The data is translated into SNMP so that the internal network management systems can understand it and send the necessary alerts to network managers.

John McConnell, an analyst with

See Keynote, page 30

Tacit bolsters knowledge mgmt. package

■ BY JOHN FONTANA

PALO ALTO — Tacit Knowledge Systems this week will introduce a set of modules that promise to reduce the amount of custom development work required to deploy its knowledge management software.

Tacit Expertise Services Platform 4.0 features connectors for hooking enterprise systems, such as customer relationship or document management software, to ESP's profiling engine, which creates a database of experts and their subject-matter specialties.

Tacit also is including predefined interface modules that support using portals or e-mail clients for searching the ESP database.

Tacit's ESP, at its heart, is a collaboration system that helps users discover subject-matter experts within an organization. The company's profiling engine works behind the scenes examining e-mail, documents and other electronic data with which an end user produces or interacts over time, as a means to define a user's expertise and knowledge. The software has a security-brokering element that lets end users determine what parts of their profiles they want public and private.

"Most companies aren't in the business of writing infrastructure code," says John Old, the former director of information and management for Texaco's global exploration and production business unit. Old, who left Texaco a few months ago to start his own consulting firm, says Tacit realizes there are other systems besides e-mail that need to be monitored.

Tacit 4.0 has new connectors for Documentum's document management system, Lotus databases and a crawler for network file systems. It also adds support for XML as a way to pull information from systems that produce data in that format.

The interface modules include Microsoft Outlook, Lotus Notes, Plumtree Corporate Portal, Lotus K-Station and Palm.

Tacit also has added new document search capabilities that provide links to the source documents that are used to build a user's profile. Tacit has added support for Oracle's 9i database to go along with existing support for SQL Server 7.0 and 2000. Java-based ESP 4.0 supports Sun Web Application Archive (WAR) standard, which lets it plug into any Web application server.

"What we've provided is a larger set of configuration options that can be deployed more quickly," says David Gilmour, founder and president of Tacit. "ESP 3.0 was suited for application developers. Version 4.0 is ready for the enterprise."

Tacit 4.0 runs on Windows NT and 2000. Pricing starts at $125,000 for one connector and one interface module for 500 users. Additional connectors and interfaces are $25,000 each.

Tacit: www.tacit.com

Personal page

Tacit Knowledge Systems is introducing Tacit Expertise Services Platform 4.0, which includes a number of modules that minimize the amount of customization needed to deploy the knowledge management platform.

Keynote

continued from page 29

McConnell Associates, says Keynote is offering an integration package that will help customers short on staff and time. He says customers want services that work with what they have in their networks.

Keynote customer John Gannon says his company has saved time and money by using Keynote's Test Perspective service to minimize Web site downtime. The company is announcing an integrated testing portal for its Test Perspective and LoadPro testing services. The former is a self-service tool, while LoadPro is a full-service offering managed by Keynote. Gannon, an infrastructure architect at FOXSports.com, says although he's been able to better load-test his Web site, the company could still do some work on its testing services.

"The ability to view details on errors while a test is running would be extremely valuable," Gannon says. "I'm also looking for the ability to ramp up and down during the course of the test. This would allow us to simulate load spikes, which are very common in TV/Internet integration scenarios."

The new services are slated to be available in July. ■

Noteworthy news

Keynote has introduced new services and upgrades to some Web site benchmarking and diagnostics programs.

Service	Function	Monthly price
Data Pulse	Delivers performance data collected by Keynote in real time to network management systems.	$1,000
SNMP Adapter	Feeds real-time performance alerts into third-party management tools.	$1,250
Wireless Perspective 2.0	Measures performance of wireless and short message service messages received between disparate networks.	$1000 (enterprise edition)
Red Alert 2.0	Monitors secure transactions that use digital certificates, user authentication, cookies and pause times.	$100

Symantec

continued from page 29

antec SOC in San Antonio.

The computer worms that ravaged the Internet and forced many corporations to shut down for a day or longer last summer are still thriving. "We're still seeing a lot of Code Red and Nimda," says security analyst Andrew Garthe, who got his first introduction to computer security response while at Fort Gordon before joining Symantec about one-and-a-half years ago. "About once a month, there's a serious event of some kind for each customer. We're seeing massive [DoS] attacks these days."

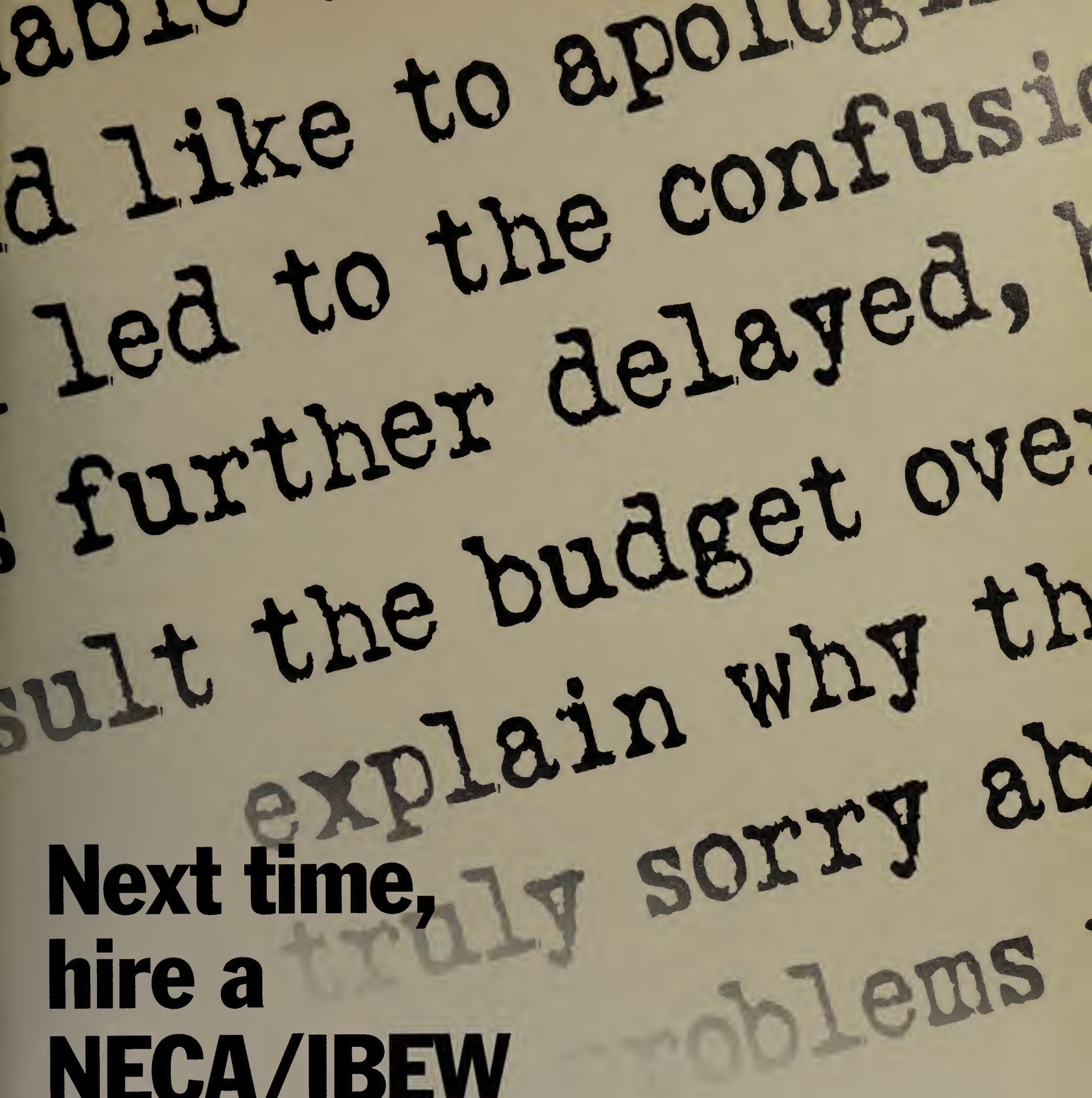
Garthe and other analysts can obtain multiple views of the customer network they monitor on their computers and via a large projection screen on the wall that highlights quiet areas in green and danger zones in red. Symantec also co-relates what it sees across multiple customer networks to determine if an ongoing pattern indicates a wider threat.

Symantec has developed its own enterprise management software for collecting output from different vendors' firewalls, and server- and host-based intrusion-detection system (IDS) equipment via a device it installs on each corporate network. The management software, which might eventually be marketed via Symantec's security products division, co-relates threat data so it can be presented as an overview to the observer.

Staff at the San Antonio SOC also can call on the experience of Symantec's antivirus division and the rapid response team that seeks to identify new viruses and worms and provide protection against them.

Symantec's customers tend to be large organizations that want complete monitoring of internal servers, IDS, antivirus and perimeter defenses, such as firewalls. Most agree to three- to five-year contracts that can cost upwards of $1 million. While Symantec's staff didn't disclose exactly whose network was in display on the large-projection screen, one customer offered to explain his rationale for outsourcing security monitoring to Symantec.

"We've had an initiative to focus on intrusion detection and management, and we wanted detectors on critical servers inside the organization," says Richard Diamond, CIO at The Doctors Company, a physician-owned medical malpractice insurance firm in Napa, Calif. The company has 12 regional offices and 400 employees. While The Doctors Company has 45 professionals in its IT department, it would be a strain to train and deploy them for round-the-clock monitoring. "We just don't have that level of resources," Diamond says. ■



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'NET INSIDER

Scott Bradner

SuperComm as an indicator

I just got back from my first SuperComm show and must say that I was surprised. There were more exhibitors, fewer booth babes, more attendees and less noise than I expected.

I've managed to avoid SuperComm up to now figuring that I was paying full penitence by teaching at two NetWorld+Interop shows per year (Why do they still call it NetWorld+Interop anyway given that NetWorld was a Novell show and Novell is hardly a major network player these days?) But I stopped offering tutorials at N+I a year ago and, because I accepted a speaking engagement at SuperComm, I decided to take a day to see what the scene looked like.

The first thing that became clear was that I would not be able to cover the show, even if I bypassed most of the booths. I glanced at the booths in one of the two main halls. I was a bit surprised at the size of the show; I was expecting something quite a bit smaller based on the reports I had gotten from N+I in Las Vegas a month ago.

The SuperComm Web page (www.supercomm2002.com) lists 834 exhibitors. There also were more attendees than I expected, based on the same reports from N+I. It was not as crowded as N+I had been at the height of the Internet boom, but not bad.

A quick scan through the SuperComm Web page produces some interesting statistics about what types of products that were being pushed. Who would have thought that more than 50 vendors would admit they still sell ATM? IP telephony was a popular topic with about 70 vendors listing it and another 44 listing softswitches, but maybe telling us something, there were only six vendors on the list for billing, a handful for network security and only one for fraud control. What is wrong with the picture of 10 times as many vendors trying to peddle VoIP than vendors trying to charge for it?

Who would have thought that more than 50 vendors would admit they still sell ATM?

In my quick scan, broadband came out on top with 127 vendors, twice as many as Gigabit Ethernet and about three times as many as those still determinedly pushing metropolitan-optical networking.

I'm not sure how to interpret these statistics, particularly because they do not include the size of the companies. But I would guess that the IP telephony interest is a leading indicator, and the ATM numbers is a trailing one.

I am beginning to change my opinion on one topic based on what I saw and heard in Atlanta. I am no longer as convinced that TV over IP is just blind IP enthusiasm run amuck. Oxtgnet, a very small start-up, borrowed the corner of the Xavi booth to tell me about its video-over-IP wireless set-top box and spun a convincing tale of how a TV over IP service potentially could make sense.

I'm not sure if I'll be back to the show next year, but it was worth the trip this year.

Disclaimer: Harvard was tied up with commencement and did not make the trip, so the above is my trip report.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

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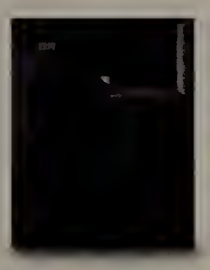

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ServiceProviders

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Short Takes

■ Despite the telecom meltdown in the U.S., **DSL** is continuing to show strong growth worldwide, according to research by DSL Web site **Point Topic.** According to Point Topic, the DSL subscriber base grew by about 20% in the first quarter, jumping to almost 24 million lines by the end of March from just less than 19 million lines at the end of 2001. BellSouth led U.S. providers with a 17% increase.

■ **XO Communications** recently announced it is offering a hosted Microsoft Exchange service, which includes access to messaging features and collaboration tools such as calendaring and file sharing. XO is partnering with application service provider enabler **Apptix** to deliver the service, which will be hosted in XO data centers. Customers can get a shared service, which includes XO hardware, or a dedicated service in which customers provide their own equipment. Either way, customers will get 50M bytes of storage, virus protection patch upgrades, and hardware and software maintenance.

■ **EarthLink** will resell wireless Internet service from **Boingo Wireless** that lets users access the Internet at broadband speeds through a network of 802.11b wireless LANs that Boingo coordinates. EarthLink customers with a laptop, an 802.11b network card, and software developed by Boingo will be able to access the EarthLink Wireless High Speed service in airports and hotels at speeds up to 11M bit/sec.

■ **Deutsche Telekom** has no plans to merge its U.S. wireless subsidiary, **VoiceStream Wireless,** with a rival, despite talk of consolidation in the fiercely competitive North American market, a company official said last week at the Euroforum telecom conference in Germany. "We are aware of the current consolidation discussions in the U.S., but we don't see a need to rethink our wireless investment in this region," said Andreas Krautscheid, a policy director with DT.

Williams plans Ethernet push

MAN, WAN offerings said to be cheaper, more scalable than private line.

■ BY MICHAEL MARTIN

Williams Communications is planning to enter the metropolitan-area and wide-area Ethernet services market later this year with offerings the company says will be more scalable than those available from others.

"A lot of companies have announced Ethernet services, but many of those are just over private lines," says Rodger Williams, manager of product development for enhanced data services at Williams.

What this condition means for customers, Williams says, is they still have to pay private-line prices for their Ethernet services and can't scale their bandwidth very well because they're restricted to private-line bandwidth increases.

Williams' services, which the company intends to launch this fall, will use Ethernet over dense wavelength division multiplexing equipment (DWDM) in the MAN. For long-haul Ethernet connections, Williams will map customer VPNs to the company's Multi-protocol Label Switching-based Cisco backbone.

Williams has yet to decide on an equipment supplier for its network edge Ethernet equipment, but has tested a variety of gear in the company's labs.

Customers will be able to get subprivate-line pricing and will be able to scale bandwidth more incrementally than with a private-line service — possibly in 1M bit/sec increments, Williams says. The company has not yet decided exactly what speeds and increments will be available, however.

Williams says it believes offering Ether-

See Williams, page 38

Loudcloud looks beyond services

■ BY JENNIFER MEARS

One of the first Web outsourcers to extend its offering into enterprise data centers, Loudcloud is now the latest service provider to take things one step further by licensing its automated infrastructure-management software for use behind the corporate firewall.

The company next week will announce the availability of its Opsware automation technology for sale to businesses to use to manage internal infrastructure. Opsware automation technology is the foundation of Loudcloud's managed services offering, enabling functions that previously had to be done manually to be done automatically, thus saving time and improving reliability, the company says.

Industry analysts say the offering should appeal to customers who are looking to manage many servers running standard applications, although it probably wouldn't be a good fit for customized, complex installations. Analysts also suggest the move is an effort by Loudcloud to offset lower than expected revenue from the services side of the business, but that it may be a bit ahead of its time.

Marc Andreessen, chairman of Loudcloud, told financial analysts in an earnings call earlier this month that customers have expressed a growing interest in using Opsware behind the firewall.

"These companies typically have made a large investment in in-house infrastructure, or for other reasons cannot outsource management of their IT operations," Andreessen said.

"[Businesses] will derive the same benefits from Opsware that we do: lower cost, higher quality, rapid scalability and improved security."

Marc Andreessen
Loudcloud Chairman

In response to the demand, Loudcloud has created a licensed version of Opsware that is similar to the one it uses to provide managed services to hosted customers. The software, called Opsware System 3, includes an Opsware core that runs on Solaris and Linux boxes and provides the overall management piece, and agents that are deployed on the servers being managed. Cost for the software has not been disclosed.

Customers can now use Opsware internally "to automate the management of servers and applications in their data centers," Andreessen said. "They will derive the same benefits from Opsware that we do: lower cost, higher quality, rapid scalability and improved security."

Several customers, including an international insurance firm, a government entity and financial services firm JP Morgan Chase, are already deploying the software, CEO Ben Horowitz said during the earnings call.

The news is not a surprise to industry observers, who say service providers such as Web hosting companies, application service providers and content delivery networks (CDN) are having to tweak their offerings in response to a stagnant economy and changing customer needs.

Loudcloud launched its business about three years ago with a focus on dot-com customers. As dot-coms disappeared, the company had to shift its vision, and last spring introduced Opsware 2i, in which Loudcloud provides remote managed services in enterprise data centers.

Increasingly, however, Loudcloud has found that the enterprise businesses it now targets have huge internal investments and data centers that they are unwilling to scrap, in addition to security concerns. These factors influenced the decision to license Opsware, the company said.

Other service providers have announced expansions of their service offerings. CDN service provider Akamai

See Loudcloud, page 38

EYE ON THE CARRIERS

Johna Till Johnson

The customer deserves a 'bill of rights'

It's past time to let you in on a secret. Every time I sit down to write a column, I ask myself, "What's the actionable response?" In other words, what are you personally going to do differently when you finish perusing these words?

If the answer is, "Nothing," I'm not doing my job. This column isn't about ivory tower perspectives on esoteric technologies. It's about providing you with practical advice for real-world issues.

So here's my latest challenge. As I noted in a recent column, all signs indicate that customer service from telephone companies is bad and getting worse. I've wrestled with how to address this in a column. The problem is, bad telco service is like bad weather: It stinks, but you can't do anything about it. So what's to write about?

The answer hit me two weeks back while serving as a panelist at SuperComm. The topic was (aptly enough) "Telecom In Turmoil." One of my co-panelists, Paul Caroll, vice president of public telecom consulting at Gartner, noted that providers are in the process of dividing into two groups: network providers and service providers.

Well, that's about as elegant a definition as I've heard. Network providers sell you bandwidth, and service providers sell you ... service.

The challenge, therefore, lies in convincing your friendly neighborhood telecom provider to get into the customer service business. Not all service providers "get it." In fact, most still think their primary job is to sell you bandwidth. So how does a lone network manager change the perspective of a mighty telco?

Start by showing your sales rep this column, and ask him or her whether the company plans to be in the bandwidth business or the customer service business. Remind them that bandwidth is a commodity, and that if they want to sell you services, customer service is the differentiator.

Then lay out your expectations for customer service (or what I call the customer's bill of rights). Focus on the issues that your boss will care about:

- Uptime. The provider should be able to guarantee uptime in terms that you're comfortable with, such as DNS availability or packet "goodput" (not just Layer 1 availability).
- Ability to support mission-critical applications. The service provider should be prepared to work with you to demonstrate the ability of his service to support your mission-critical application and its requirements for latency, response time and available bandwidth.
- Ability to support important new services such as extranets.
- Service-level agreements — and how they're monitored, managed and measured.
- Responsiveness to critical issues (whether from the sales team, the tech support team or both). If you expect your sales rep to be available with a maximum 30-minute response time, 24/7, say so.

Bottom line: From here on out, you should only be doing business with companies that understand they're in the service business. Who are they? We'll cover that in my next column.

Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting and engineering firm. She can be reached at johna@greenwichtech.com.

Loudcloud

continued from page 37

Technologies, for example, plans to license its software for use behind the corporate firewall. Several application service providers, such as USinternetworking and Corio, have unveiled programs that let customers get the ASP's application management expertise, but keep applications hosted on-site.

Earlier this month, IBM Global Services announced it would begin offering managed hosting services on customer premises.

"It boils down to flexibility [and] making sure you have an offering that meets the needs of a number of customers," says Carrie Lewis, an analyst with The Yankee Group. "IBM is another example. Even the big guys in the marketplace are trying to be flexible and offer these in-house solutions to their customers who aren't fully prepared to outsource the whole thing."

While companies may be reluctant to outsource, they're also looking for ways to make IT management easier as internal infrastructures grow and become increasingly complex, Lewis says.

"The answer is not to throw more people at it. It's to come up with solutions like Opsware that can automate a lot of the day-to-day kind of stuff so that the IT people can focus on the more complex issues and the more strategic issues affecting the company," she says.

But Lewis notes that Opsware is designed for standard application management and not for complex, customized enterprise application deployments.

"This does not replace what Accenture, what IBM, and what the other big outsourcing providers offer," she says. "This is an automated system, and it's designed for doing standard types of things. But it's a good start."

"We believe the market opportunity for [Opsware] is significant and offers a strong complementary offering to our outsourced managed services business."

Ben Horowitz

Ahead of its time?

David Tapper, an analyst at IDC, says Loudcloud may be a little ahead of its time with the offering.

"If I were an adviser I would say don't make that move yet," he says. "The tough part is they're so pressured from the revenue side. If they're not making their numbers from the services, what do you do? You find something else that might work."

As for Loudcloud, Horowitz said during the earnings call that licensing Opsware just made sense.

"We believe that market opportunity for [Opsware] is significant and offers a strong complementary offering to our outsourced managed services business," he says. ■

Williams

continued from page 37

net over DWDM should give the company a cost advantage.

But business customers are unlikely to care about whether they get their Ethernet services over SONET or DWDM, says Beth Gage, an analyst with consultancy TeleChoice and a *Network World* columnist. What they will care about is pricing, reach and reliability.

The question of reliability may be an issue for some potential Williams customers. Williams' parent company, Williams Communications Group, filed for Chapter 11 bankruptcy protection in April. However, before filing, Williams had reached a $6 billion debt-restructuring deal with a majority of its creditors and expects to emerge from the Chapter 11 process with a clean balance sheet. When it filed for Chapter 11, the parent company tried to reassure Williams Communications customers by saying the telecom division likely would not be affected by the reorganization process.

Edging into Ethernet

Features of Williams' planned Ethernet services include:

- Metro core and wide-area offerings only.
- Will ride over dense wavelength division multiplexing gear.
- Will be sold on a wholesale basis to service providers and enterprise customers.
- Expected to launch in late Q3 or early Q4.

For the regional Bell operating companies such as Verizon and SBC Communications, and the interexchange carriers such as WorldCom and AT&T, it makes more sense to use the infrastructure they already have in place, which is SONET, Gage says. For newer carriers without a large installed base of legacy gear, cheaper DWDM equipment might be a better choice.

Williams won't be able to provide as much reach as some of its competitors because the company operates only metropolitan core rings and a nationwide long-haul network. It has no metropolitan grids running to buildings off the metropolitan core. But service providers or corporations operating out of a collocation facility on a Williams metropolitan ring would be able to access the Ethernet services. And large business customers operating their own campus grids could also take advantage of Williams' offerings.

While Ethernet isn't yet a widely available service outside the LAN or campus, more carriers are leaping into the market, says Nick Maynard, an analyst with research firm The Yankee Group.

"Everyone who's a survivor in the telecom market is throwing out [press] releases with the word 'Ethernet' in them," he says.

Even the RBOCs have gotten into the act. BellSouth and SBC offer tariffed metropolitan Ethernet services. Other providers offering Ethernet services include Yipes Communications (in Chapter 11 bankruptcy), Cogent, Telseon, XO Communications, Time Warner Telecom and Qwest.

Some providers offer Ethernet Internet access from a collocation facility, while others offer service out to the customer premises.

Ultimately, Maynard says, service providers are going to need to offer a package of services and bandwidth.

"You can't build a business model by just offering a cheap, fat pipe," he says.

TeleChoice's Gage says the Ethernet services market is still in its infancy.

"Last year there was a learning curve for enterprise customers," she says. "Now they've been educated about it and are beginning to look at these services." Over the next few years, every carrier is going to need to develop an Ethernet strategy if it wants to compete for large enterprise accounts, she says.

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The Edge

■ SERVICE PROVIDER DEVELOPMENTS AT THE JUNCTURE BETWEEN THE ENTERPRISE AND THE NEW PUBLIC NETWORK

TeleGea promotes service fulfillment

■ BY TIM GREENE

WALTHAM, MASS. — TeleGea is introducing software it says speeds provisioning and gives customers the ability to make changes to services.

The company's Accelerator Platform is a software engine that connects to other software platforms in use by carriers. This eliminates the need for service provider personnel to make manual entries into multiple separate software platforms to set up a new service or sign up a new customer to an existing service.

Instead, service providers make one set of entries via Accelerator Platform, and Accelerator Platform passes on the relevant instructions to the other software. These entries are made through a workstation screen that is designed for each specific service.

"This is a relatively new area and there's a large degree of skepticism regarding [this technology] within telecom providers," says Elisabeth Rainge, an analyst with IDC.

Typically, carriers have operational support systems (OSS) and business support systems (BSS) software that is necessary to set up any service. Carriers write custom software to pull elements of these OSSes and BSSes together to provision services on a service-by-service basis. TeleGea's Accelerator Platform acts as a glue that can bind elements of the OSSes and BSSes to automate multiple services of different types, Rainge says.

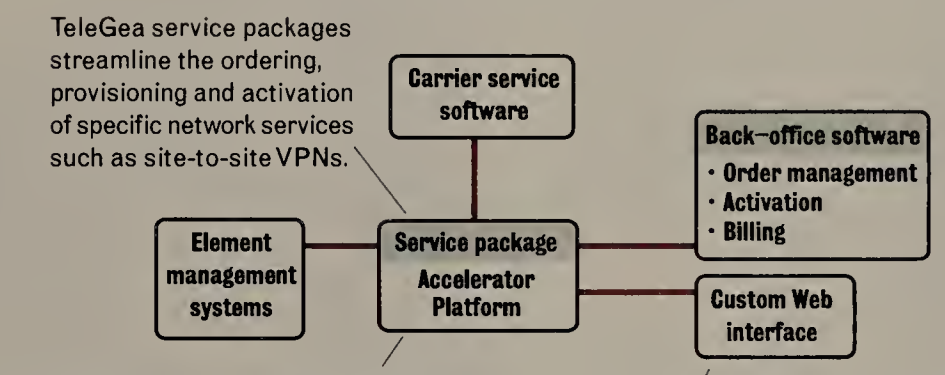
TeleGea says different software interfaces to Accelerator Platform can be written to support specific services. The company calls these interfaces service packages. So far, TeleGea has written one of these service packages for site-to-site IP-Security VPN services, and says it plans one for wireless data services.

Other vendors, such as MetaSolve and Telcordia, write such software front ends for specific services provided by specific carriers, but TeleGea's Accelerator Platform is an attempt at a reusable software engine for multiple services, Rainge says.

Aplion, which makes carrier access gear, is using Accelerator Platform to create a software interface to its Maestro management system so customers can make changes to services, says Ken Politz, vice

See TeleGea, page 42

Order faster TeleGea's Accelerator Platform software connects with other service provider software platforms to speed ordering and provisioning of new services, and ensure that use of services is logged and billed for.



Short Takes

■ **Riverstone Networks** has announced support for Layer 3 Multiprotocol Label Switching VPN services on its metropolitan-area network routers. Riverstone added RFC 2547 Border Gateway Protocol-based VPN and point-to-multipoint tunneling for virtual private LAN services, based on the **Lasserre-vkompella** draft, to its routers. VPN services will be a $4 billion market in 2006, The Yankee Group predicts. Riverstone has more than 5,000 ports deployed worldwide, including the networks of Korea Telecom, Hutchison Global Crossing, DACOM, neos Networks and Utfors. **www.riverstonenet.com**

■ **VINA Technologies** announced that it has renewed its OEM agreement with **Lucent** for the **ConnectReach** network access products. These products let carriers integrate voice and data services onto one T-1 line to reduce network provisioning, maintenance and management costs. ConnectReach is based on the VINA Integrator 300 integrated access devices. **www.vina-tech.com**

Atrica lines up partners, customer

Program designed to raise profile with ILECs, IXCs.

■ BY JIM DUFFY

SANTA CLARA — Optical Ethernet startup Atrica has launched a program designed to make its products more appealing to incumbent local exchange, interexchange and competitive metropolitan carriers by giving them access to a range of integration, sales, service and support options.

The program encompasses "strategic," technology, channel and services partnerships with 10 organizations. Those organizations include 3Com, Arampa, Crescent Networks, Flexlight, Micromuse, SAN Valley Systems, Controlware GmbH, FibroLAN, WizLAN and SYSPOL of South Korea.

Strategic partners span multiple geographies and offer sales, service and support of Atrica and partner products. Technology partners provide joint development, interoperability testing, and new systems based on development and testing.

Channel partners include systems integrators, turnkey systems providers, distributors, and value-added resellers that provide local market sales, service and support resources. Service partners provide ongoing support of customers' systems through systems integration, design and analysis, professional services, training, installation and maintenance.

Atrica's 10 new partners provide its customers with access to storage-area networking, fault management, last-mile optical access and routed network services, and extend the vendor's global sales and support capabilities.

More online!

See how Atrica is upgrading its Ethernet service management and provisioning system.

DocFinder: 9827

In February, Atrica reached a technology partnership with InfoVista, and in April a channel partnership with Soliton Systems of Japan. Soliton Systems will provide integration and support services for Hokkaido Telecommunication Network (HOTnet) of Sapporo, Japan, Atrica's first customer.

HOTnet has selected Atrica's Optical Ethernet System as the foundation for its next-generation metropolitan-area network. The service provider is delivering high-speed Internet access services for the 2002 World Cup Soccer Championships taking place in 20 cities in Japan and South Korea with the Atrica products.

HOTnet has already completed testing of Atrica's equipment and plans to begin commercial deployment this month.

Atrica has received a total of $117 million in funding since its founding in February 2000, including seed funding from 3Com, first-round financing from Accel Partners and Benchmark Capital, second-round financing from five leading global service providers, and a third round led by St. Paul Venture Capital. ■

Cisco claims progress on its OSS portfolio

BY JIM DUFFY

SAN JOSE — Cisco says it is making progress in its efforts to offer service providers an operational support system for IP and data that rivals the functionality of such systems for voice.

At the recent SuperComm show, Cisco unveiled enhancements to its Internet OSS portfolio of products that the company says are designed to let service providers rapidly provision new services to enterprise customers by significantly improving the manageability of Cisco products. Management has been a shortcoming in Cisco's offerings to service providers, says Kurt Dahm, Cisco director of OSS market development and deployment.

"Operations folks have criticized us for the lack of manageability of our devices," Dahm says. "Our OSS is now a competitive advantage [for customers, and Cisco], a differentiator."

After initial missteps in marketing to incumbent service providers, Cisco now targets the operational staff of incumbents, who are more closely associated with product-buying decisions than upper management. An appealing OSS is key for Cisco to impress operations personnel who previously received Cisco's overtures tepidly.

To increase that appeal, Cisco added two products to its Internet OSS and enhanced another. The new products are the Cisco Networks Services (CNS) Notification Engine and the CNS Performance Engine.

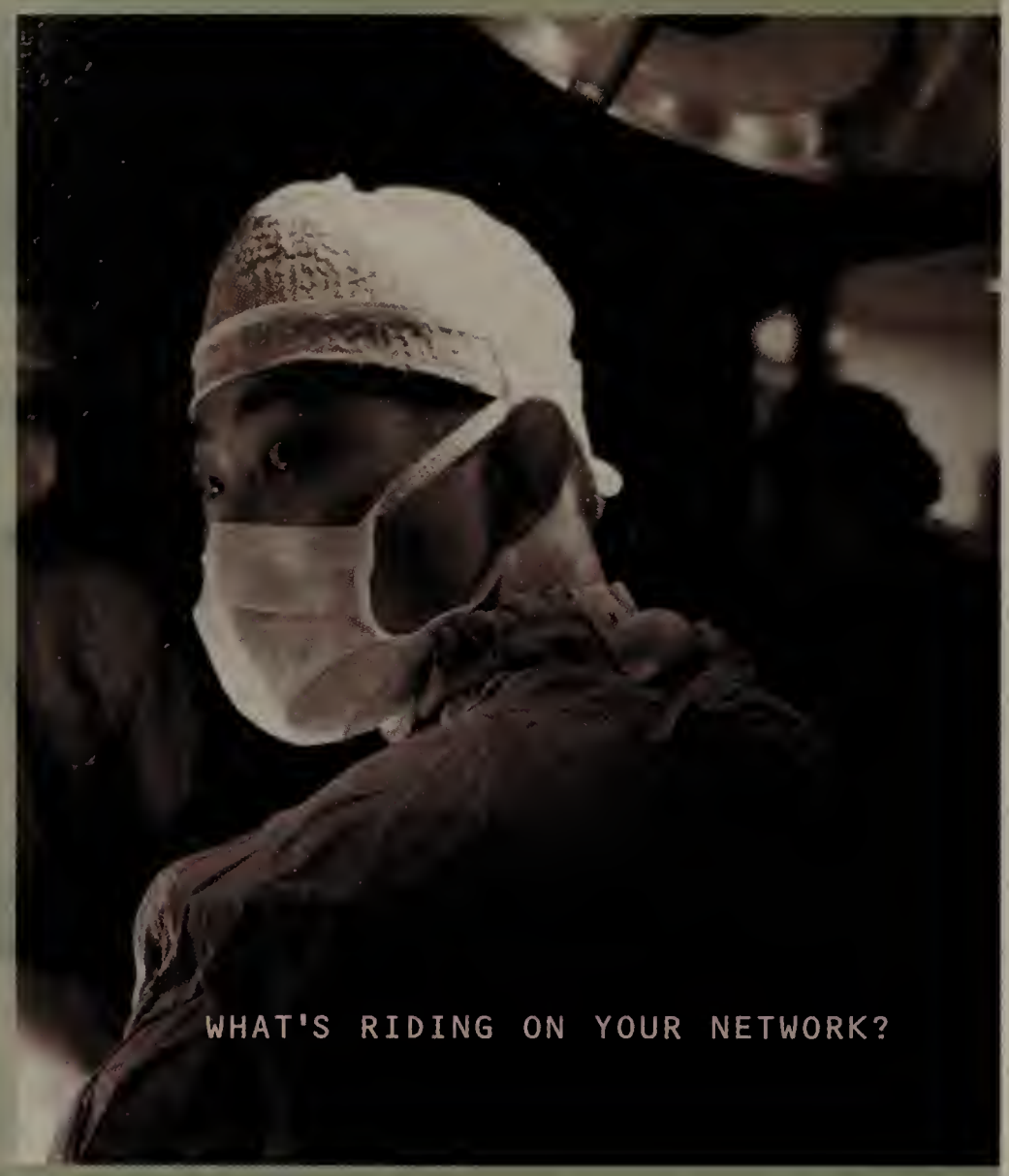
CNS Notification Engine provides fault-management capabilities designed to detect, diagnose and resolve network faults. It provides user-defined filtering and correlation, and eliminates redundancy of device notifications; collection and processing of Cisco IOS syslog messages; and distributed processing of notifications from the device, which reduces polling traffic on the network, Cisco says.

CNS Performance Engine delivers local processing and correlation of performance metrics for particular services and application domains. It collects, aggregates and forwards performance and usage data from a variety of Cisco elements according to programmed policies.

The enhanced product is Cisco Access Registrar. This product is a Remote Authentication Dial-In Service.

Enhancements to Cisco Access Registrar include support for Oracle databases, an interface to prepaid billing applications for mobile wireless services and an improved configuration interface for faster and easier provisioning. ■

- Enable secure patient interactivity on web sites via SSL
- Launch collaborative physician Intranet
- Stream video of clinical procedure in real time
- Provide patient chart updates in two-minute intervals
- Update health tip content on multiple sites
- Deploy distributed billing application



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TeleGea

continued from page 41

president of sales for Aplion.

"To have end-user control of some of the provisioning functions is critical to us," Politz says.

Politz says Aplion wants VPN customers to be able to add and drop valid users from the service without putting the request through the carrier.

Accelerator Platform supports multiple access screens, including one for a customer service representative, one for an agent who is reselling a service, and one for end users to make changes to the service they are buying.

Accelerator Platform is available now for testing with service providers. ■

Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

RSVP provides quality of service

■ BY NAVEEN JOY

Resource Reservation Protocol has been designed to provide end-to-end quality of service to Internet data flows.

Typically all IP traffic on the Internet is delivered on a best-effort basis. This delivery method does not address the requirements of multimedia applications such as videoconferencing, real-time IP multicasting and Internet telephony. Resource Reservation Protocol (RSVP) is an effort to address the performance needs of such applications.

RSVP is a signaling and control protocol that doesn't carry application data. It operates on top of IP in the transport layer of the Open Systems Interconnection (OSI) protocol stack.

Host applications use RSVP to request the necessary QoS (such as guaranteed bandwidth) from the network for specific data flows. The QoS request is sent through all the routers along the path of the data flow on a hop-by-hop basis, and at each device the RSVP process attempts to establish and maintain a reservation state to provide the requested service.

Refresh messages are sent periodically by hosts and routers to maintain this state during the duration of the data transfer. The established state ends when the end host sends an explicit "teardown" message after the application has finished sending the data. RSVP also adapts to routing topology and multicast group membership changes.

While RSVP provided QoS for data flows, it does not change existing routing protocols that determine where the packets get forwarded. To obtain routing-related information, RSVP consults the existing IP routing database.

For handling bidirectional data flows, it treats each flow independently and makes unidirectional reservations. The receiver host is responsible for initiating and maintaining the reservation for the flow. This receiver-focused approach accommodates the requirements of dynamic group memberships in IP multicasting environments and addresses diverse receiver requirements.

How it works

Host A wants to send multimedia traffic at a constant rate to Host B using the Internet. To facilitate this process, Host A requests QoS (example: bandwidth on demand) from the network using RSVP. The following steps are involved in establishing end-to-end QoS, which is set up before any data is transferred.

1. The RSVP program in Host A receives the desired QoS request from the multimedia application and sends an RSVP path message to Host B.

2. This message follows the exact path that the multimedia traffic would take and creates a "path state" across all nodes in the direction of the traffic flow. The path message contains the sender's IP address, format of data packets and details on the traffic characteristics.

3. On receiving the path message, Host B originates an RSVP reservation request message. The next hop for this message is obtained from the previously established path state and follows the exact reverse direction of the path message. It contains the desired QoS information (in this case the requested bandwidth) and a filter condition that identifies the subset of data packets that should receive the QoS.

4. The RSVP program in the router, on receiving the reservation request message, passes it to two local decision modules: an admission control module, which determines if the node has sufficient available resources to supply the requested QoS; and a policy-control module, which verifies whether the requester has the administrative privileges to make the reservation. If either check fails, it returns an error notification to the application that made the request. If both checks succeed, the RSVP program configures the packet classifier in the node to determine the data packets that receive the QoS. The RSVP program also configures the packet scheduler to provide the requested QoS on the outgoing link. This creates a reservation state in the node.

5. After having made the reservation locally, the router sends the reservation request to the next node in the direction of the sender. The process continues on a hop-by-hop basis, and at each node the RSVP program attempts to establish and maintain a reservation state to provide the requested QoS. Finally, the reservation request reaches the sender host and creates a reservation locally. At this point, the multimedia data stream originating from the sender will receive the requested bandwidth from the network.

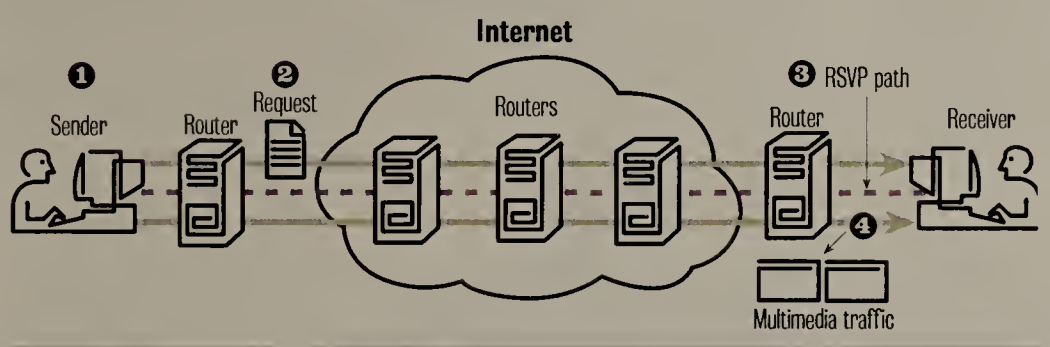
6. After having successfully reserved the bandwidth end to end, Host A sends multimedia traffic to Host B.

Joy is senior network architect at Fujitsu America. She can be reached at njoy@ssd.fujitsu.com.

■ HOW IT WORKS

RSVP

Resource Reservation Protocol (RSVP) allows the sender of multimedia traffic to set up end-to-end QoS.



1. Multimedia application on sender's PC requests QoS from sender's network.
2. Sender's network requests that receiver of multimedia traffic set up RSVP path. Request takes exact path that multimedia traffic will take once RSVP is set up.
3. Receiver follows path back to sender, establishing reservation states at each router along the way.
4. When reservation request reaches sender, end-to-end QoS is established and multimedia traffic is sent.

Ask Dr. Internet

By Steve Blass

We provide network-monitoring services and use HP OpenView as our main monitoring software. If we have multiple companies using the same IP addresses, then during OpenView's Discovery Process, it learns all the routing tables of each device on the network. If there are two companies with the same IP Scheme, and OpenView discovers the same IP address in two places, it can't tell us which device is having the problem. This limits the ability to expand to support more companies. Any suggestions on how to solve this issue?

When we last explored this issue (www.nwfusion.com, DocFinder: 9829), the answer was that OpenView did not support network address translation, based on a July 2000 whitepaper, which was the most recent documentation available at the time. Today, a search on the keyword 'NAT' at www.openview.hp.com returned the following link to a whitepaper dated October 2000 that describes how to configure OpenView to monitor overlapping private IP address spaces in certain cases (www.nwfusion.com, DocFinder: 9830). The requirements are that static NAT addresses are used and that User Datagram Protocol (UDP) traffic can be passed back to the central management station. One uses a 'netmon.noDiscover' file for these devices and then loads the public NAT addresses for these devices manually.

Blass is a network architect at Change @Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Sampling syslog software

Last week we discussed syslog, a system for handling status messages and logging and we looked briefly at the format of a syslog message. There's a lot more to the standard, and we encourage you to read the relevant IETF standard, RFC 3164, "The BSD syslog Protocol" (www.nwfusion.com, DocFinder: 9836).

The syslog protocol is very useful, but be warned it has its deficiencies: It isn't secure; syslog messages are relatively easy to fake (sending syslog messages greater than the standard maximum of 1,024 bytes has been used in an exploit to hack syslog) and there's no sender validation. Anyway, we will forgo delving any deeper into the bowels of syslog and instead look at syslog products.

The one that caught our eye and triggered last week's exposition of the syslog protocol was WinSyslog from Adiscon GmbH (www.adiscon.com).

WinSyslog is a multithreaded win32 service that runs under all Windows versions and can log syslog messages to the screen display, an NT event log, an Open Database Connectivity (ODBC) data source and flat ASCII files. It also can send e-mail alerts.

WinSyslog can process messages according to rules that let you determine how to handle the message. For example, you can send e-mail alerts or store the message in a database or file (see www.nwfusion.com, DocFinder: 9837). You also can define rules that forward messages to other syslog servers (that is the relay configuration we discussed last week).

GEARHEAD RATING **Adiscon WinSyslog**

8

1=awful, 10=insanely great

Configuration is done through a separate client program that can be launched from the WinSyslog server or on its own. This separation is clumsy.

There's also a Web front end so you can remotely review the syslog messages, but it isn't included in the distribution and you must download it separately. It consists of four Active Server Pages and an unhelpful help file. The installation instructions are nonexistent and you'd better understand ODBC configuration if you want to get the Web interface working.

Until you purchase a license (very affordable at $50), WinSyslog will run in freeware mode that presents a scrolling display of the 60 most current messages.

We haven't even begun to cover all that WinSyslog can do, and overall the tool is very good, but it could use a little polishing. While the documentation is very good (www.nwfusion.com, DocFinder: 9838), leaving the Web interface practically undocumented is unfortunate.

We award Adiscon's WinSyslog eight gearteeth out of 10.

There are syslog servers other than WinSyslog available, but how do you test them? Well, you could write a test application. A great starting point is freeware Visual Basic 6 source code you can use to send syslog message. You can find the tool on the Kiwi Enterprises downloads page: www.kiwisyslog.com/software_downloads.htm.

You'll also find other interesting freeware tools there, including Kiwi's Syslog Message Generator for Win9x, ME, XP, NT4 and 2000.

This tool is terrific! It lets you select the address of the target syslog server and send syslog messages from either the local machine's IP address or from a fake random

GEARHEAD RATING **Kiwi Enterprises Syslog Message Generator**

10

1=awful, 10=insanely great

C address or a fake random address on the local subnet. You also can select the destination port if the syslog server is not using Port 514, and there are several options for the source port value. Note that you can't select 514 as a source port if the destination port is also 514 as RFC 3164 suggests.

You can create streams (continuous messages) or bursts of messages (up to 500 per second), select message content (default, custom, sequential numbering in the text), have invalid messages sent (corrupted and or overly long content) and several other options that could stress a syslog server.

This is not only a great tool for stress testing a syslog server, it also is invaluable for testing a system of syslog servers and relays to ensure that syslog reporting and forwarding behaves as intended.

We award Kiwi Syslog Message Generator 10 gearteeth out of 10!

Connect to whatever port you like at gearhead@gibbs.com.

CoolTools

Quick takes on high-tech toys

By Keith Shaw

SONICblue debuts latest personal video recorder

Sure, playing with routers and switches is fun, but we know what you really want — a personal video recorder. SONICblue is attempting to satisfy your desires with its recently launched ReplayTV 4500 series, an upgrade from its ReplayTV 4000 model.

The new recorder adds modem support for standard phone line connections (the 4000 has a broadband port), redesigned software and is now offering service-based pricing. The company says the new pricing model will reduce the base price for consumers.

The device lets you record TV shows without a videotape, play back recorded shows without the commercials, control live TV (including rewind and slow motion), and send videos to others who own the 4000 or 4500 units over the Internet. The device can record up to 320 hours of television. In addition, you can stream video between rooms via networked ReplayTV devices.

There are several models within the 4500 series, which include recording for 40, 80, 160 or 320 hours. Prices are $450 for the 40-hour model, $750 for the 80-hour model, $1,250 for the 160-hour model and $1,750 for the 320-hour device. A one-time service activation fee of $250 for each new product also applies. The company says the model is compatible with cable, satellite and antenna feeds.

SONICblue debuts latest personal video recorder.

OK, stop drooling. Head to www.sonicblue.com for more information.

An affordable flat-panel monitor?

Two new LCD displays from ViewSonic might push you into the world of flat-panel monitors. The VA720 and VA520 are aimed at Internet, gaming and home-office users, but you might be able to justify the cost at work as well. They go for $700 (VA720) and $430 (VA520), after a $100 rebate.

An affordable flat-panel monitor?

The VA720 is a 17-inch monitor that features 1,280-by-1,024 pixel resolution, 260 nits of brightness and a contrast ratio of 450 to 1. It weighs 13.6 pounds and has a depth of 2.7 inches to save you some desk space. The VA520 is a 15-inch monitor that has a resolution of 1,0247-by-768 pixels, 250 brightness nits and a 400-to-1 contrast ratio.

Head to www.viewsonic.com for more details on the new monitors.

logear jumps into power-line networking

logear's new HomePlug series of devices are aimed at letting users connect their computers via power lines. The new products include the HomePlug Ethernet Bridge, and a HomePlug USB Adapter. Both devices cost $150 and are available via resellers, retailers and online.

By connecting the computer to the device and plugging it into a power outlet, the computers are networked to other home-plugged devices up to 900 feet away, logear says. The devices are compatible with HomePlug Powerline Specifications 1.0, and offer speeds of up to 14M bit/sec. They also include 56-bit Data Encryption Standard encryption. Go to www.iogear.com for more details.

Sony launches a cavalcade of desktops

If you don't want to record your television shows on a new personal video recorder (PVR), there's always the computer. In what might be a record (call Guinness?), Sony announced 11 new VAIO desktop PCs recently. As usual, the desktops have a lot of cool bells and whistles, but we'll focus on the PCV-RX790G model, which includes Sony's Giga Pocket PVR. Exclusive to the PCVRX790G and PCV-RX780G, the Giga Pocket PVR lets you watch live TV and pause, rewind and store recorded shows to the hard drive. In addition, if you get the model with a DVD writer, you can store them on DVDs.

The PCV-RX790G will cost about $2,500, and includes an Intel Pentium 4 processor at 2.4GHz, 512K bytes of Level 2 cache, 512M bytes of RDRAM, a 120G-byte hard drive, a floppy drive, choice of a DVD-RW, DVD-ROM, CD-ROM or CD-RW drive, a 4X AGB 3D nVIDIA GeForce4 MX 440 graphics card, integrated Ethernet port, four Universal Serial Bus ports and two i.Link IEEE 1394 ports, and a Memory Stick slot. The device is available now.

Head to www.sonystyle.com/vaio for details on the other 10 VAIO desktop models.

Shaw can be reached at kshaw@nww.com.

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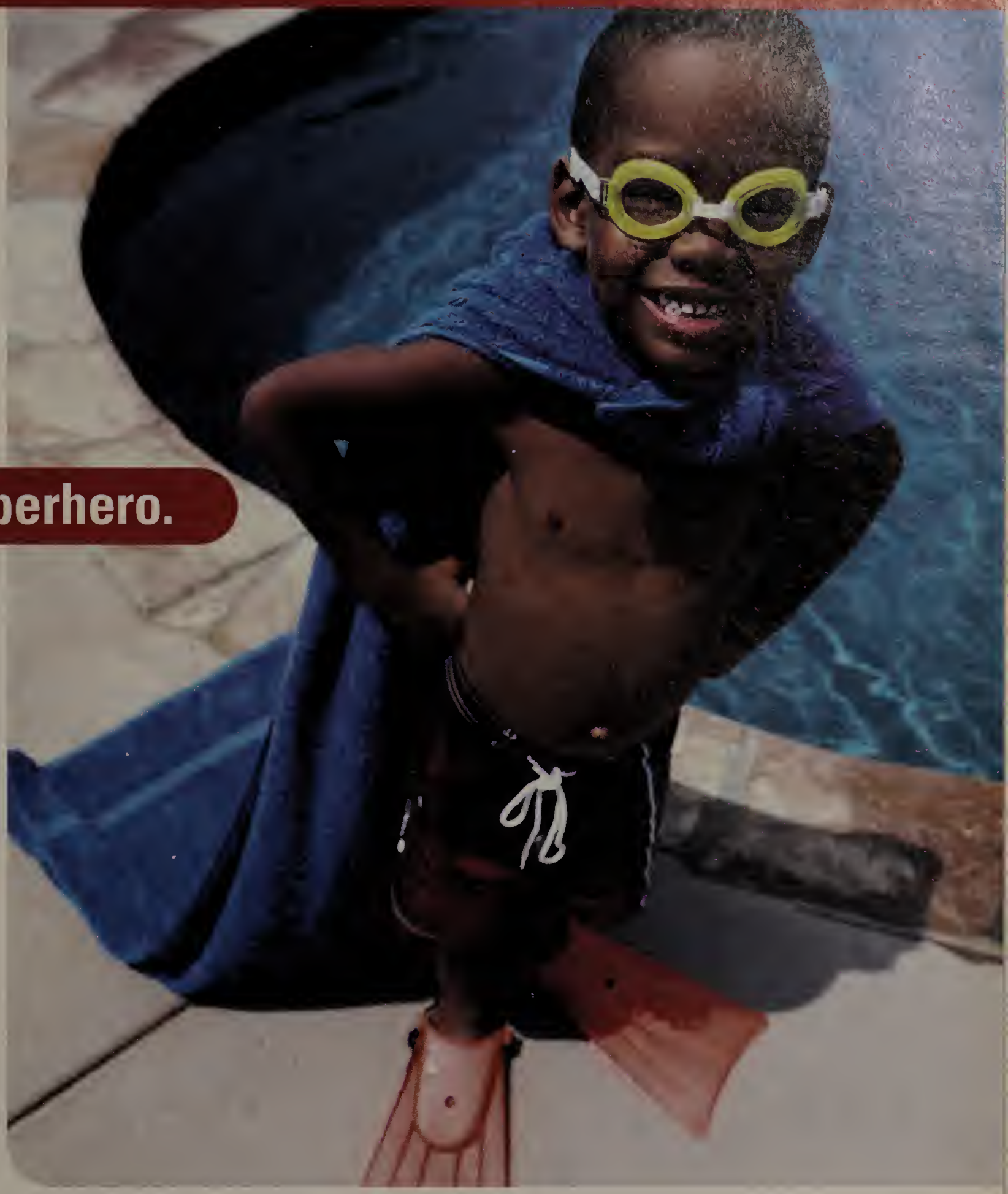

Customer demands can keep you scrambling. They want voice, data and conferencing—and they want them yesterday. Well, get your cape ready, because when you join forces with us, you'll look like a hero. We work with the right manufacturers, like **Kentrox**. And we have the experience to evaluate the most cost-effective, efficient solution to your problems. So when a customer needs to monitor the end-to-end performance of their frame relay network, we can recommend the **DataSMART® Frame Monitoring DSU/CSU**s. Whether your challenge is verifying service level agreements or isolating performance problems to the LAN, local loop or frame relay network, we're ready and waiting to help you save the day. [The cape is optional.]

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EDITORIAL

Sandra Gittlen

Finding help in all the right places

I don't envy you right now. Your operations and capital budgets have been slashed, you're short-staffed and you can't send employees to training because it's too costly. Yet upper management is looking to IS for advances that will reduce business costs and bring in new revenue.

NetworkWorld On the road with SEMINARS & EVENTS

Talk about being whipsawed.

Currently, I'm zigzagging the country on two Network World Seminars and Events Tours — State of Security Town Meeting and Storage Town Meeting — and if you're like the network executives folks I've talked to, your game plan looks something like this:

You're looking to morph into a profit center, offering storage, bandwidth and applications to departments across the company, and even to suppliers, distributors and other business partners. When you're done with that you'll implement Web services to simplify application integration and to facilitate access to legacy information. And when you're done with that you're going to make it possible for your company to handle all transactions securely on the 'Net.

But in every city I hear the same questions. How do I get there with a lean staff and an even leaner budget? The answer that seems to bubble up most is, you learn as many tricks as you can wherever you can.

Attend free seminars. Read everything you can about the latest technologies and how they are faring in tests. Get everything you can out of your vendors. You have the bargaining power right now, according to numerous studies, so make vendors come in and explain their products to you and your team. If you tell them that there is a contract in the balance, they'll show up on your doorstep and you might just get their top engineers to boot.

Ask a lot of questions. Take advantage of any networking opportunities you get. Catch up with old colleagues, friends from college or anyone else in the business, and ask them how they are handling today's technology challenges. Don't assume you're the only one being asked to do more with less.

Finally, talk to others within your company and find out what their expectations are. Then share your limitations. They may have suggestions you never considered, such as job sharing with another department to increase your resources or bringing in college interns. Together you can brainstorm some pretty incredible ideas.

The important thing to remember is you can't do it all alone. Reach out for help.

— Sandra Gittlen
Events editor
sgittlen@nww.com

opinions!

The Linux alternative

Regarding "Persistent doubts dog Windows 2000" (www.nwfusion.com, DocFinder: 9750): Linux does file and print sharing in Windows environments very well using Samba. This would be a perfect opportunity to help migrate more Linux into the business environment, because file and print sharing are not in the same category as "critical apps," which many companies are still reluctant to deploy on Linux.

If 60% of your NT servers are file and print sharing, deploy Linux on the sites and solve 60% of the problems for free, software-wise. Pretty much a no-brainer and very good for the bottom line.

Certainly consider moving the other NT applications to Linux rather than more Microsoft-centric solutions. It will save a lot of money in licensing fees down the road.

Scott Chapman
Albany, Ore.

Becoming Proficient

I'm astonished that the story "Smart routes" (www.nwfusion.com, DocFinder: 9751) failed to mention Proficient Networks as one of the major routing control players, even though *Network World* has recognized Proficient Networks as "a start-up to watch" (www.nwfusion.com, DocFinder: 9754). If they are worth watching, why not report on what they are doing in this space?

Phillip Remaker
San Jose

Male-bashing?

I totally agree with Paul McNamara's "NetBuzz" column "What HP thinks of guys like us" (www.nwfusion.com, DocFinder: 9752). We need to start working toward total equality, so both genders and all races are viewed as competent and equal.

David Ruggles
Network engineer
Safe Data
Wallace, N.C.

Questionable comments

Two points in the story "Users get innovative with virtual LANs" (www.nwfusion.com, DocFinder: 9753) made me raise an eyebrow. First, the story states, "As Layer 3 switches emerged, observers said VLAN technology would become obsolete, as wire-speed routing between subnets would let users control network broadcast traffic more easily." What are subnets other than VLANs? How can a Layer 3 device route between subnets if they weren't in different VLANs? Isn't the reason we create VLANs to limit the broadcast domains? Having multiple subnets in one VLAN defeats the purpose.

Second, in Harris County, Texas, Jerrl Evans says that it was natural to put all the users on one VLAN. He states, "The only way anyone can plug into the network at all is for them to have an IP address on their machine that's on one of our VLANs." Does that imply that they do have multiple VLANs, or does he mean "one of our subnets"? In this case, his network must be very slow because of the excessive broadcasts that would occur. It also is prone to security issues because someone would just need to find a spare IP address on one of the VLANs or subnets and they are in.

Ahmed Sabah
Network support manager
Sheikh Khalifa Medical Center
Abu Dhabi, United Arab Emirates

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

More online! **www.nwfusion.com** Find out what readers are saying about these and other topics. **DocFinder: 9826**

INTRANET ADVISOR

Daniel Blum

Time to play stump the analyst

NAC poses hard questions to vendors and industry analysts to answer at Catalyst.

Next month, many users will head to San Francisco for The Burton Group's Catalyst conference, a key annual event in the world of identity management, directories and related security issues. Some users belong to the Network Applications Consortium (www.netapps.org), which is dedicated to promoting integration, interoperability and vendor "coopetition."

NAC poses hard questions to vendors and industry analysts to answer at Catalyst. You can find the full list at www.burtongroup.com/catalyst/nacquestions.asp, but here are three doozies:

Q. Today, portals and access management systems proxy users through one account to end systems or proxy logons for individuals. Will we ever have the notion of a common identity that works across apps with background authentication and authorization processes?

A. This is coming, slowly. Kerberos provides delegated access (or impersonation) across chained applications today, but is implemented only in intranet pockets. Web access management (WAM) solutions such as Netegrity SiteMinder pass identity in HTTP header variables, but not all applications use the headers, and this interface is a point of vulnerability. The upcoming Security Assertions Markup Language will enable secure, portable identity across WAM systems and, eventually, applications. Windows .Net server will expose APIs enabling protocol transition from other authentication methods to Kerberos.

Q. How can corporations manage an authenticated identity and all its access privileges across the disparate platforms, application servers and security models involved in a complete transaction?

A. For each application, determine what is global and what is "special." Then consolidate your environment by reducing the number of duplicative platforms or applications, and by replacing application-specific directory and authentication functions with general-purpose solutions, such as enterprise directories. Use metadirectory, provisioning and federated identity solutions to link the remaining systems.

Q. How can firms protect internal IT assets while providing the access necessary to conduct business in a virtual enterprise environment?

A. Replace your "hard shell, soft center" architecture with a virtual enterprise network security architecture. Rearchitect your perimeter layer (or firewalls) to accommodate a more distributed topology. Deploy a control layer enabling identity-based security including directory services, Web access management services and state-of-the-art smart card or at least password policy management tools.

Wasn't that fun? Send questions to me at the e-mail address below. If you stump me, maybe I'll add your question to the Catalyst program.

Blum is senior vice president and research director with The Burton Group. He can be reached at dblum@burtongroup.com.

REALITY CHECK

Thomas Nolle

Chasing RBOCs or rainbows?

Whether Juniper can succeed in the RBOC market may come down to a matter of culture.

Last month, Juniper Networks announced its acquisition of Siemens' vaunted IP edge player, Unisphere Networks, and collateral deals with Siemens on distribution of the combined product set internationally. These days, any acquisition of a start-up by an incumbent vendor is interesting. The question is whether there's really any value at the bottom of the deal.

Juniper, of course, is a new-age core player that has recently been moving its products out to the network edge. The company already had acquired Pacific Broadband, a cable Internet edge player. A logical speculation at this point is whether Juniper might have acquired Unisphere as an entree into the other U.S. edge market — regional Bell operating company DSL.

Whether Juniper can succeed in the RBOC market may come down to a matter of culture. Executives at Juniper and Unisphere have stressed the "fit" in corporate culture between them. That's true, but it's a fit in the culture of IP and the Internet. On the other hand, the culture of the Internet is hardly the culture of the RBOCs. Let's look at some pros and cons of the Unisphere deal vis-à-vis Juniper and the RBOC market.

First, a pro. Unisphere is one of the few providers of a service switch that can offer both Level 2 and Level 3 services. The RBOCs are the premier providers of Ethernet metropolitan services already, and WorldCom's entry into that market probably means competition there will heat up. Unisphere could also help the RBOCs deal with a critical issue: frame relay services over Multi-protocol Label Switching (MPLS) infrastructure. Because Juniper promotes its core routers as MPLS devices, that's a powerful positive for the deal.

This issue is particularly important because the RBOCs are poised to enter the long-distance market. If the RBOCs decide to build out national networks to support a frame relay service launch, now's the time to introduce MPLS into that process — before the RBOCs get recommitted to incumbent ATM vendors.

Unisphere is rumored to be in the running for two RBOC deals, which we won't list as a separate pro because so many other vendors have rumors of similar deals circulating about them. The truth is that the RBOCs still are window-shopping in the edge space, and Unisphere may or may not actually ship gear to them.

A second pro is the fact that the Federal Communications Commission is poised to move on releasing the RBOCs for broader DSL deployment. Residential broadband is probably the key to an increased IP-based revenue stream for the incumbent carriers, especially the RBOCs. Unisphere has a good set of IP access products, just the kind Juniper would love to sell to RBOCs that plan to generate millions of new DSL customers.

But then there are the cons. Foremost is that culture issue. Even their joint announcement of their deal had a curious statement in it: "It's time to stop waiting for the old telecom industry to recover, and time to start making the new industry happen." Earth to Juniper: The RBOCs are in that "old" industry!

Another con is the very limited and IP-specific product portfolio of the two companies. Unlike archrival Cisco, Juniper isn't an industry name in ATM gear, premises equipment, voice products or a bunch of other things that carriers such as the RBOCs buy. Unisphere, in fact, spun its voice technology back to Siemens before the Juniper deal was announced. Right now, the RBOCs are all pretty ATM-centric in their plans for long-distance and DSL expansion. Can Juniper/Unisphere play in such a space?

Finally, Juniper historically has been tied to the Internet Engineering Task Force's vision of MPLS, which so far has not produced infrastructure capable of even doing frame relay over MPLS reliably. Current IETF efforts in what's called Pseudo-Wire Emulation End to End are moving slowly and may not provide a suitable solution for even current frame relay applications. Can Juniper wait to find out if it works?

Wall Street hasn't rewarded the combination of the two companies by hiking Juniper's stock price. They're waiting to see if Juniper is chasing RBOCs or chasing rainbows. So are we.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at tnolle@cimicorp.com.

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The tale of the tape in wireless LANs

802.11a becomes a contender

By Jim Geier

Network executives have long chosen 802.11b as their preferred wireless LAN standard because there have been no significant contenders. With vendors releasing 802.11a access points and radio network interface cards, there's finally a decision that needs to be made on whether to deploy 802.11a or 802.11b. When you look at the "tale of the tape" between the two technologies, you'll see that 802.11a becomes a serious contender to the champ.

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802.11a tips and tricks. Before you deploy, make sure you know about interference and other potential traps.
Page 52.

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■ Performance:

The edge goes to 802.11a for higher performance. The 802.11a products operate at speeds of up to 54M bit/sec in the 5-GHz frequency band using orthogonal frequency division multiplexing (OFDM). This technology combats impairments such as multipath propagation, which can limit data rates.

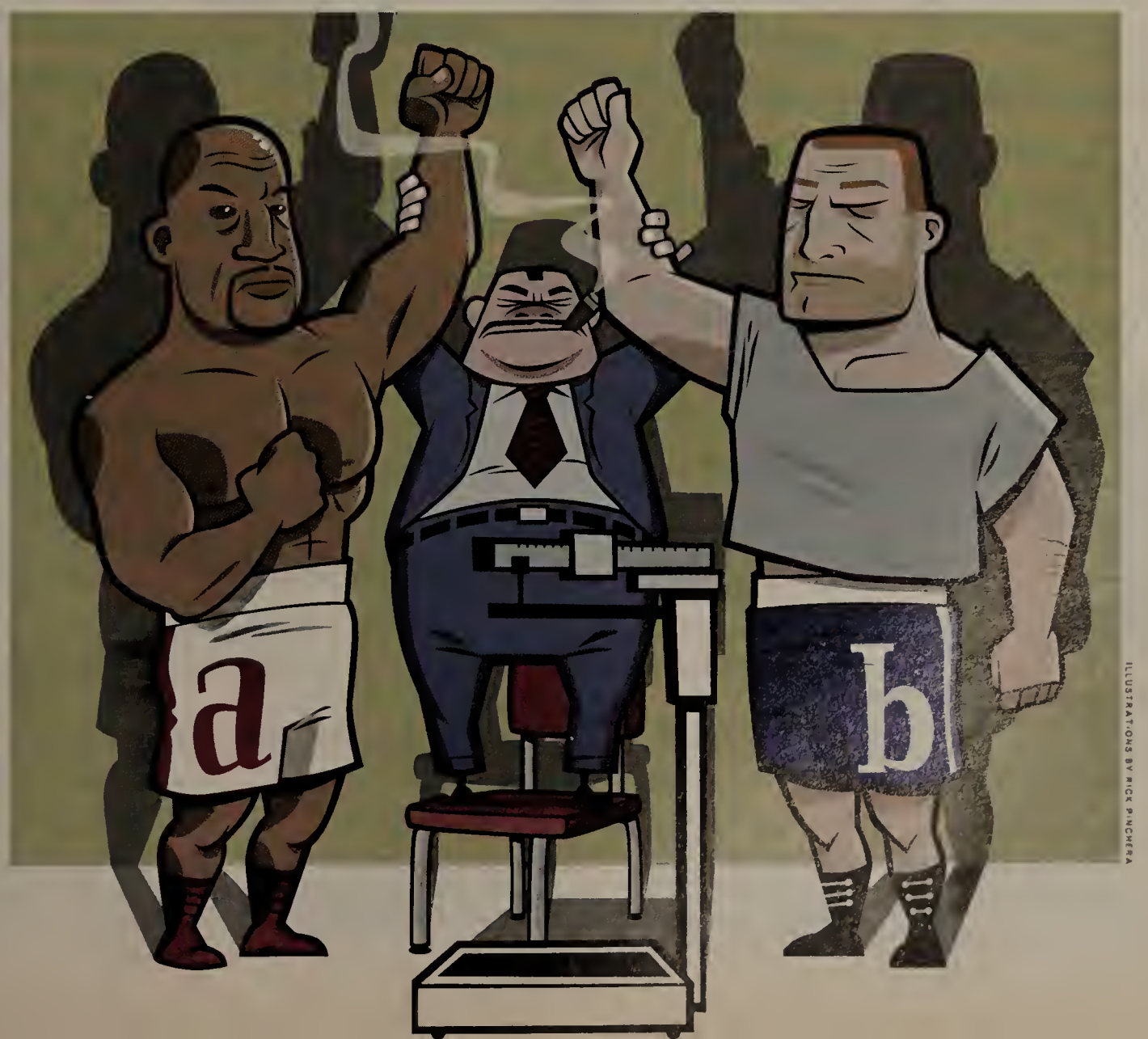
The 802.11b standard operates at speeds up to 11M bit/sec in the 2.4-GHz frequency band using direct sequence spread (DSS) spectrum, which is significantly slower and more prone to transmission impairments than 802.11a.

■ Capacity:

Another edge for 802.11a is its whopping 432M bit/sec total rate performance with eight channels (the specification includes 12 nonoverlapping channels, but current products only support the first eight). Still, it's better than 802.11b, which has 11 channels available, but only three nonoverlapping channels for a total rate performance of 33M bit/sec.

■ Interference:

802.11a and 802.11b use a carrier sensing protocol that enables the sharing of a common radio channel. An end user's radio network interface card (NIC) senses the air medium and only transmits if no radio frequency waves above a certain threshold are detected. The presence of a radio frequency signal causes the radio NIC to hold off from transmitting, and an interfering signal strong enough will make the channel appear as busy. As a result, the radio NIC will wait until the interference goes away (which



ILLUSTRATIONS BY RICK PINCHERA

could be minutes, hours or days). Radio frequency interference competes with the transmission of 802.11 frames and can significantly reduce the throughput and availability of a wireless LAN.

And 802.11b systems are more susceptible to radio frequency interference than 802.11a because of many sources of interference in the 2.4-GHz band. "Microwave ovens, Bluetooth devices, 2.4-GHz cordless phones, and other nearby 802.11 wireless LANs can cause significant and damaging [radio frequency] interference with 802.11b systems," says Erwin Noble, director of standards and strategy for Philips Electronics' Components division. Most brands of cordless phones can bring a wireless LAN to a standstill while the phones are in use within 75 feet of 802.11 devices.

Radio frequency interference with 802.11a in the 5-GHz band is practically nonexistent. As a result, 802.11a networks have a higher degree of availability. This means that 802.11a can stand on its feet much longer, free from unplanned punches.

■ Cost:

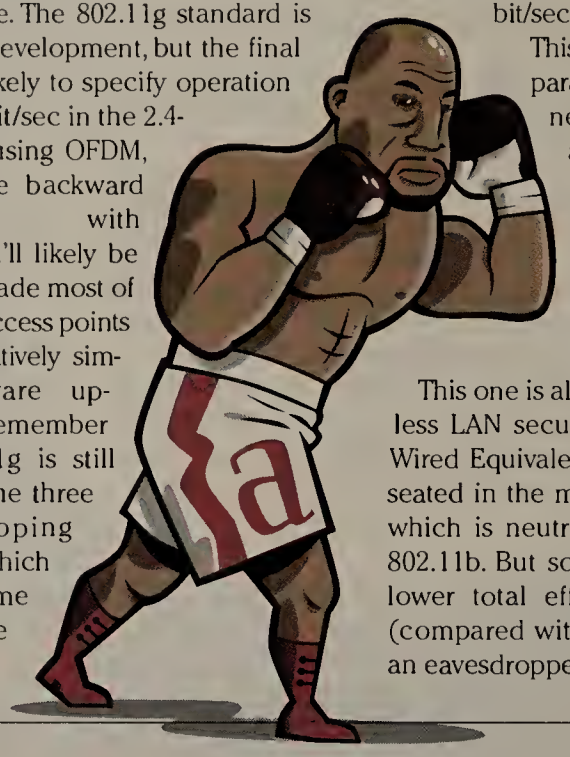
Give this one to the champ, at least for the moment. Current list prices have 802.11a components at about 25% higher than 802.11b equipment. To minimize costs, most users not requiring higher performance are better off with 802.11b. However, with an 802.11a deployment you will have enough capacity for extra users and the inevitable bandwidth-hungry applications in the future.

"Eventually the price gap between 802.11a and 802.11b will likely become smaller with economies of scale," Noble says. Most wireless chipset suppliers have announced multimode 802.11a/b chipsets, and radio NIC vendors will likely release multimode radio NICs by year-end. Similar to the 10/100M bit/sec Ethernet, the single-priced, dual 802.11a/b radio could become commonplace. This might make the price debate a moot point as users buy one radio NIC for 802.11a and 802.11b.

■ Existing installations:

Another one for the champ. A problem with the 802.11 standard is that it lacks provisions for interoperability between 802.11a and 802.11b. As a result, it's often not cost-effective for companies having existing 802.11b implementations to migrate to 802.11a.

Some feel that 802.11g is a better upgrade path from 802.11b to achieve higher performance. The 802.11g standard is still under development, but the final version is likely to specify operation up to 54M bit/sec in the 2.4-GHz band using OFDM, and will be backward compatible with 802.11b. You'll likely be able to upgrade most of the recent access points through relatively simple firm-ware upgrades. But remember that 802. 11g is still limited to the three nonoverlapping channels, which don't come close to the higher capacity of 802.11a. And 802.11g has the same issues with radio frequency interference as 802.11b.



■ Range:

Score this as a tie. The higher frequency of 802.11a means it has a lower range than 802.11b networks. However, in practical tests, 802.11a is capable of maintaining data rates higher than 802.11b at similar ranges. Near the access point, 802.11a is 54M bit/sec and 802.11b is 11M bit/sec. As the range increases, 802.11a and 802.11b will step down in data rate to accommodate for lower signal levels, but the data rate of 802.11a will still remain higher than 802.11b at comparable ranges.

802.11b might hang on at longer ranges than 802.11a, but 802.11b will go down to 1M bit/sec, which is barely breathing. Most companies deploying enterprise wireless LANs plan 802.11b coverage to support 11M bit/sec throughout the facility. This is done to achieve comparable performance to Ethernet. You can replace these access points with the same number of 802.11a access points and have equivalent if not better performance.

■ Security:

This one is also a tie. Most primary wireless LAN security mechanisms, such as Wired Equivalent Privacy and 802.1X, are seated in the media access control layer, which is neutral regarding 802.11a and 802.11b. But some could argue that the lower total effective range of 802.11a (compared with 802.11b) would require an eavesdropper to be closer and possibly within the controlled area of an 802.11a system to receive signals. This would lean the decision toward 802.11a if deploying the network takes into account effective antenna selection and placement.

■ Bottom line:

In a split decision, the issue of using 802.11a or 802.11b comes down to many factors. If you want high performance and minimal radio frequency interference, then 802.11a is the way to go. An 802.11a network can support existing and future needs for higher performance, making it a cost-effective, long-term strategy.

The 802.11a standard is better for multimedia applications that include video and audio, which may spur movement in the home market for entertainment, and companies looking at videoconferencing applications.

The higher capacity of 802.11a will better support densely populated areas, including airports, convention centers, schools and stock exchanges. The large, concentrated groups of users in these situations will often bog down an 802.11b network.

Cost-conscious companies with existing wireless LAN deployments will likely stick it out with 802.11b until the faster 802.11g comes on the scene. Furthermore, developments in providing for dual-mode (both technologies on the same access point and/or radio cards), and even tri-mode (a, b and g on the same equipment) might likely cause these decisions to be moot.

Geier provides independent consulting services to companies developing and deploying wireless networks. He can be reached at jimgeier@wireless-nets.com.

Things to know before you deploy a fast wireless LAN.

802.11a tips, tricks and traps

By Tom Henderson, Network World Global Test Alliance

Products with the 802.11a designation are just hitting the market, offering high bandwidth and more channels than 802.11b products, available for about two years. But before you upgrade (or before you go wireless for the first time), there are some tricks and traps to be aware of.

■ Knowing the differences

If you've had experience with the 802.11b standard in its current form, you know it has three channels available for use. This number is important because it dictates how 802.11b access points are placed to cover wireless geography into areas called cells. 802.11a has eight channels, and therefore while radio broadcast patterns are roughly the same, programming cells are decidedly different between the two standards. Things get even stranger if you're planning to use the dual-channel or hybrid 802.11a/b access points.

If you associate access points as cells, each cell has a broadcast pattern available for client hardware. The client hardware will associate with access points at a specific data rate that is a function of the quality and signal strength between the two devices.

The 802.11a product group is similar to 802.11b in that clients associate with an access point at a data rate where packet error rate is low. The difference is that data rates for 802.11a fall back from a peak of 54M bit/sec through a range of slower data rates — typically 48M, 36M, 24M down to a minimum of 6M bit/sec. By contrast, 802.11b products we've tested typically fall back to half the data rate of 11M bit/sec at the first step, yielding a typical throughput of about 250K byte/sec. As multiple user demands of a single access point climbs, true throughput can start to crawl with as few as three active users per 802.11b access point.

See Tricks, page 55

Wi-Fi and Wi-Fi5

If you ask the Wireless Ethernet Compatibility Alliance (WECA), they'll tell you there's an easy way to tell the difference between 802.11b and 802.11a. The 802.11b products are certified to a standard called Wi-Fi-Certified, and shortly (once there are two different 5-GHz chipsets) the 802.11a products will be certified to a standard known as Wi-Fi5-Certified. Both certifications speak strongly to interoperability, but there is no interoperability between 802.11a and 802.11b without the use of dual-technology products.

There are currently more than 320 products with Wi-Fi certification. When the Wi-Fi5 program begins, there is a backlog of 90 products hoping for certification.

— Tom Henderson

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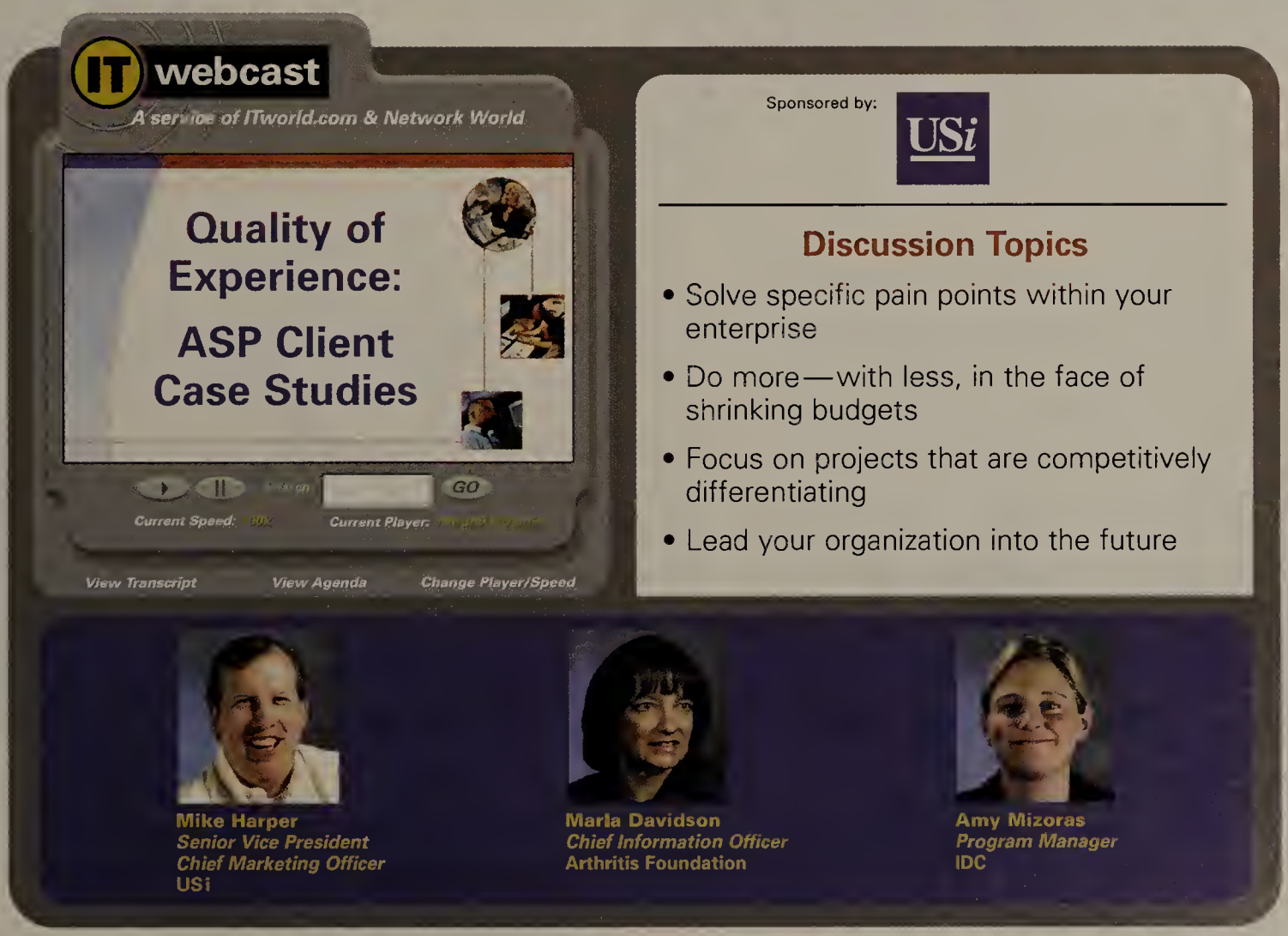

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Tricks
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We've found that a high concentration of users near one access point in 802.11b causes clogging, which is not found in 802.11a. Users close to an access point can tend to dominate the access point to the detriment of those farther away, but both standards can demonstrate this effect if there are lots of high-data rate applications such as streaming media (think CNN downloads) from the same access point. The best cure we've tested so far for this is the bandwidth throttling that's available from the Bluesocket wireless gateway that we tested a few months ago — and it works with 802.11a and 802.11b (see www.nwfusion.com, DocFinder: 9822).

Behind the scenes, 802.11a has other advantages that let access points provide steadier service. As an example, two techniques in 802.11a help slow fallback and provide stronger throughput. The first is sending redundant data in a process called forward error correction, which isn't present in 802.11b. This gives added immunity to electromagnetic interference and noise that might otherwise corrupt data and cause fallback or retransmission. Packets in the received signal have error correction content with no effective overhead or wasted space. Periodicity per transaction is reduced, increasing overall 802.11a availability, found uniformly across all the 802.11a access points we tested.

The second reason is that 802.11a's signal transmission, orthogonal frequency division multiplexing, has a higher immunity from the effects of multipath signals. These occur when reflections of a signal arrive a fraction of a second before or after the desired signal, causing confusion at the radio receiver in the access point or client card.

Nonetheless, 802.11a data rates can seem to change whimsically. We discovered during tests of a D-Link DWL5000AP and the D-Link DWL-A520 adapter (the first PCI-bus 802.11a card that we could find), that the data rates would change from 36M up to 54M bit/sec, then drop back again periodically for no apparent reason. The D-Link PCI-bus card, a top performer otherwise in our tests, has an antenna mounted on the rear of the card's backplane. The 'aha' moment came when we discovered that a person walking down the hallway behind the access point temporarily increased the access point's signal — boosting it to a higher data rate. We couldn't convince the individual to stand in the hallway during major downloads. We also saw that moving file cabinets and large metal objects sometimes had a bearing on reflectivity — and could even unblock a signal or send it from a nominal speed to a much higher one.

The CCI conundrum

Being able to roam throughout an 802.11a geography is important. Hand-off from one access point's radio to another ensures uninterrupted connectivity. Some applications, such as Microsoft's Pocket Outlook on an iPAQ running Windows Pocket PC, react rudely when a message download is interrupted during a gap in coverage.

Co-channel Interference (CCI) occurs when users can associate (communicate with) two access points on the same channel. CCI ties up association time, which can be a detriment to other users on either access point. This can happen at perimeters of cells, where the data rates are slowest.

Using power settings to limit the geography covered by an 802.11a or 802.11b ac-

How we did it

We tested 802.11a and 802.11b access points in three environments, a one-story office building at three test points, a nine-story office building, and a flat, half-mile square level field (at less than 85% relative humidity to diminish surface reflectivity). Note that some 802.11b products weren't tested in the nine-story building. Measurements are taken at specific test points using the same physical notebook orientation with two identically configured Compaq notebook computers (Presario 760US configured with Windows XP). We used XP's "restore" feature to wipe drivers and registry entries at each test point and interval, and used drivers published at the vendor's Web site the day prior to test.

The Agere/Orinoco antenna product was tested in the open field, using an APC uninterruptible power supply. We suspended the antenna on a 1-by-6-inch-by-8-foot stud, and positioned the antenna to center at 6 feet above average terrain, then recorded the data rate for Agere/Orinoco's 802.11b "Gold Card" and a 3Com 802.11b card.

We tested 802.11b and/or 802.11a products from the following vendors in conjunction with this story:

802.11a access points and cards
D-LinkAir Pro
Intel ProWireless 5000
Netgear HE102 access point; HE501 PC Cards
Proxim Harmony
Proxim Skyline
SMC 2755W

802.11b access points and cards
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cess point can reduce the duplicate channel coverage phenomenon somewhat, with a possible sacrifice of overall throughput. A throughput reduction occurs because access point data rates fall as a function of signal, and signal is reduced as a function of distance (and antenna dispersion patterns/strength) from an access point.

The 802.11a products can reduce this effect because there are more channels available (eight channels, although Atheros now says it can theoretically go up to 13, although it is untested and potentially nonstandard), and therefore a greater distance is allowed between two access points that use the same channel (see graphic, below). Using a combination of power tweaking, antenna positioning and channel selection, a larger cell geography can be deployed without running into CCI problems.

High-density deployments, including those found in public access spaces (coffee shops, libraries and airport lounges) might have some immunity to the problem, mainly because people won't know that there's a problem. Without analyzers, the service-level agreement for access is the grumbling/finger-drumming threshold. Users often won't complain about speed publicly, but will remember privately the responsiveness or perceived throughput that they had.

So far, the client software we've used has not shown a CCI problem. A good addition to client-side drive software would be an indication that a dual/multiple-association or CCI problem is occurring, thus letting a user perhaps move to a better location. The effect is only dramatized by impatience from perceived slowness, similar to a slow modem connection.

Some access points use reverse TNC connectors that let optional antennae be used in 802.11b products, but there's a trend away from using detachable antennae in 802.11a products because of potential conflict in the frequency channels allocated to 802.11a. This potentially thwarts misuse, but also robs those deploying access points of their ability to choose optimal antennae.

We also found that mapping a geography for 802.11a deployment involves a combination of science and magic. While software often lets a map be drawn, it's difficult to know the signal bouncing/reflectivity and blocking values for equipment, wall studs and panels, elevator shafts and other objects that can cut or wreak havoc on the radio signals in 802.11 wireless LANs. For example, we used an 802.11b antenna from Agere Systems, which is said to have a broader dispersion pattern. We tested it first in an open warehouse area, where we found a stronger signal strength (110-feet line-of-sight at full speed, we fell back to a slower speed at 353 feet). We have been unable to find vendors willing to put external antenna connectors on 802.11a products, as Federal Communications Commission and international regulations have higher containment in the 5-GHz spectrum that 802.11a products operate in.

Designing LANs

Most enterprise-oriented wireless LAN products (both 802.11a and 802.11b) come with site survey tools. Typically, the tools will let you define a perimeter geography. Then the tool helps a wireless LAN designer place access points to optimize coverage, although CCI never seems to be mentioned with these tools. CCI is a potential issue with 802.11a, but not like it is in 802.11b; the increased number of available channels in 802.11a helps reduce CCI dramatically, but it's still possible in some installations, especially multifloor/office buildings using older construction, to have interference.

The only useful methods we found to control signal in captive-antenna access points was to experiment repositioning them on horizontal and vertical axes, and by using access point power options to control the diameter of broadcast cell pattern. This is because most all-captive antennae are omni-directional. Using these methods to control dispersion can have a handsome payoff in controlling CCI.

Agere, Intel and others have software that can help with CCI and access point placement. Agere's Orinoco Client Manager Site Manager application allows either 802.11a or 802.11b site roaming/wandering missions (using their cards in a supported notebook) that can show the access points and their relative signal strength/quality, so you can optimize overlapping access point channels. Both vendors' site surveying products used 802.11b samplings instead of actual 802.11a examples; nonetheless both are reasonable at finding and testing access points in cell-mapping missions.

Also, several Linux tools are emerging that replicate the functionality of vendor-specific signal quality monitoring tools, such as KOrinoco (for the KDE UI). We've used this tool frequently when conducting multivendor 802.11a interoperability and monitoring tests.

The fate of the duals

Last month at NetWorld+Interop 2002, vendors (including Intel, Cisco and Agere) announced dual-technology access points. Dual-technology devices will initially amount to two radios in a common base access point device. Some, such as Orinoco's AP-2000 and Cisco's Aironet 1200, were announced as evolutionary products that can accommodate 802.11a and 802.11b technologies. Both vendors, however, said these products also might accommodate slots for upcoming 802.11g products (For more on 802.11g, see www.nwfusion.com, DocFinder: 9821).

The primary benefit of these hybrid devices is wireless LAN compatibility and cost savings for companies that have 802.11a and 802.11b networks. However, the cost of the compatibility might cause other theoretical problems. While radios for each standard have essentially no interference with each other, deploying dual/hybrid access points also means channelizing the access points effectively.

Remember, the limitation on the number of available channels for 802.11b products means that proper cell overlaps and coverage might increase the incidence of CCI for 802.11b products, which cannibalizes available bandwidth. The complexity of correctly channelizing and optimizing will become tougher.

Dual-mode cards will likely become a popular method to ensure the ability to connect to whatever wireless LAN resources are available in an area. But this also creates an interesting conundrum: Will the settings default to the fastest connection, or will defaults become enforced by deployment and therefore organizational policy? It is unadvisable for PCs to have two IP addresses concurrently from a management and security perspective (not to mention Dynamic Host Configuration Protocol and roaming issues), although multihoming is common in statically located devices such as servers-that-route and Web servers.

Security issues: Demand the 'X' factor

Like 802.11b products, 802.11a products usually ship using default settings that vendors say will "improve the initial customer experience." Which means they're at the lowest setting or not on at all.

Settings are most critical at access points, because access points are linked to internal network resources, and Internet resources if available through internal network resources.

The security problems surrounding 802.11b are well known. Rogue access points are often poorly configured for security and might permit traffic that can be hard for intrusion-detection software to pinpoint. In turn, rogue access points defeat security perimeters in ways that drive network security analysts into early retirement.

The 802.11a product groups natively use the same Wired Equivalent Privacy (WEP) security that 802.11b products have, and are therefore vulnerable to cracking tools. Some vendors, such as Orinoco and Proxim, have included natively configurable (albeit nonstandard) high-encryption capabilities into their access points to prevent simple WEP cracking. Efforts to include 802.1X security into products to allow Remote Authentication Dial-In User Service server-supplied session keys also will pay off, although implementation is spotty and interoperability largely untested (see our iLabs report at www.nwfusion.com, DocFinder: 9823, for early interoperability tests).

Final thoughts

Part of the quality test of the products that we've seen surround enterprise management and integration potential. Proxim's Harmony product line represents the strongest enterprise-class product for a number of reasons, not the least of which is that wireless LANs created under Harmony guidelines have the best trade-offs we've seen for ease of deployment vs. installation/integration and security features.

Products from vendors such as Bluesocket and ReefEdge provide strong gateway and bridging and wireless LAN security boundary capabilities for any of the 802.11 product groupings. And while we've tested and liked Bluesocket WG-1000 features, we also wish that the strong security sentiments it represents were the first item seen in every 802.11a product box. Connecting alone isn't enough; securely connecting should be mandatory by default from every box. A mad dash to take advantage of unbaked technology is what's given e-mail, Web and other security problems that hamper deployment and give computing a bad rep as a result.

Henderson is principal researcher for ExtremeLabs, of Indianapolis. You can contact him at thenderson@extremelabs.com.

Interference issues

Because there are only three channels available for 802.11b, there will be more potential interference when setting up more than three access points. Access points on 802.11a have eight channels (with the potential to go up to 16 channels), which reduces the chance for Co-channel Interference.

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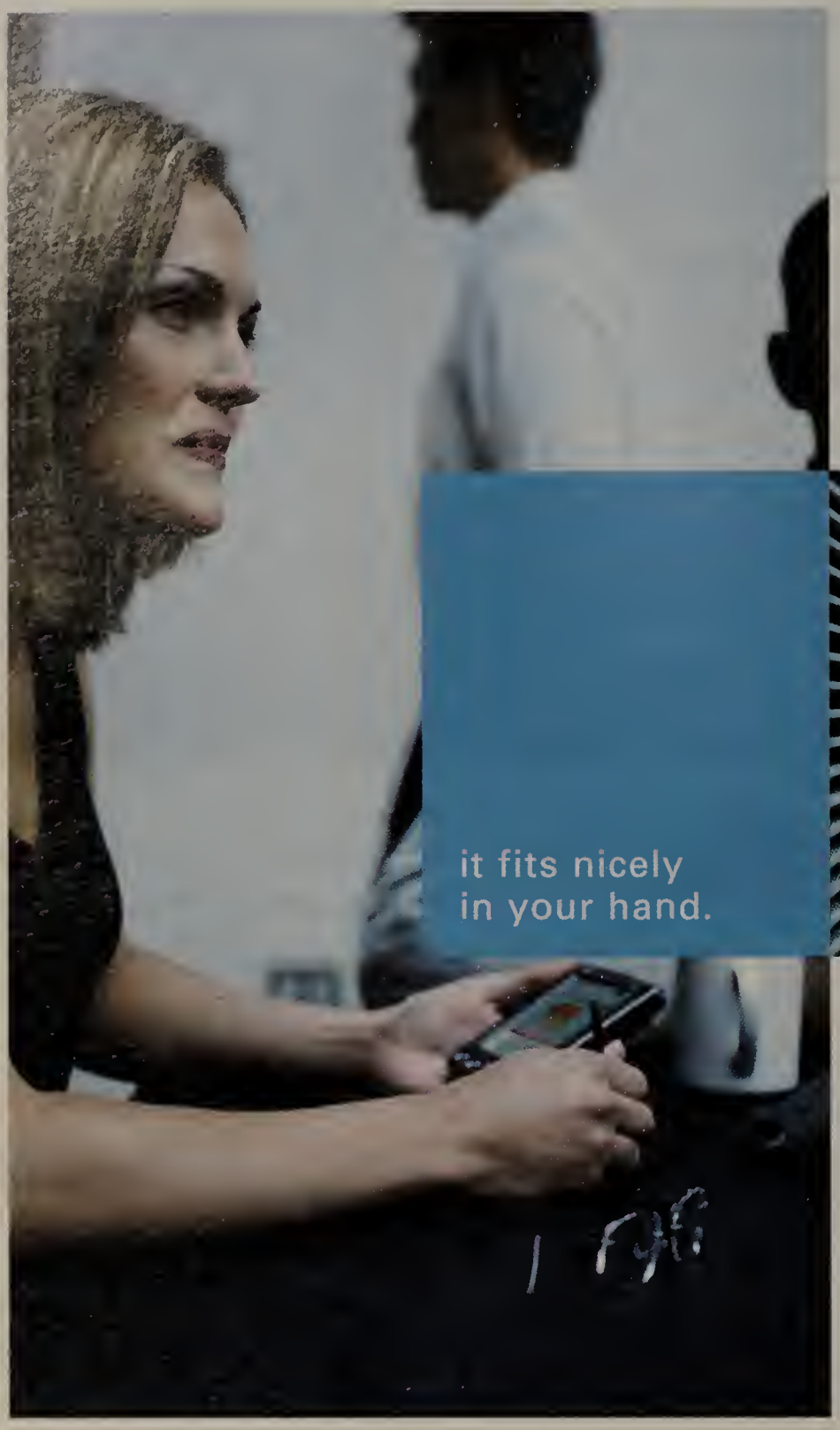

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Vendor/Model
MicronPC NetFrame 3500

Price
Starts at $2,000, $7,500 as tested

Processor type
Pentium III 1.33-GHz 256K-byte Level 2 cache

Number of processors
2

Total number of processors supported
2

Memory configuration
2G bytes (2 x 1G-byte ECC SDRAM)

Number of RAM slots
4 slots (2 open with current configuration)

Expansion slots present
(4) 32-bit 33-MHz PCI slots
(2) 64-bit 66-MHz PCI slots

Expansion slots available
5

Disk controller
Integrated dual-channel Ultra3 SCSI & single-channel MegaRAID Express 500 Ultra3 RAID Controller with 64M-byte cache.

Hard disk description
(4) Seagate Ultra 160 80-pin 10K-byte hot-swap hard drive

Number and description of hard disk bays
(1) five-slot hot-swap drive bay

Network interface
10/100Base-T

CD-ROM
16 x 10 x 40 CD-RW

Serviceability features
Tool-less chassis entry

Availability features
Dual redundant power supplies

Manageability features
Management integrated on MBD (built-in remote management); Intel Server Control; can integrate with leading enterprise management platforms.

Security features
Intrusion detection built into the chassis, locking front bezel protects power button and hard drives.

Bundled software
Windows 2000 with 5 CALS, Nero software (CD-RW), Intel Server Control (ISC) & Driver CD

Warranty
1 year next-business-day on-site support, 3 year labor, 5 year parts

NetworkWorld **Review**

MicronPC NetFrame 3500

Inexpensive and expandable, but lacking in performance and manageability.

■ BY JOHN BASS, NETWORK WORLD GLOBAL TEST ALLIANCE

Sometimes it's not good to evaluate a server on price alone. We discovered that with MicronPC's NetFrame 3500 server, which is suited more for small and midsize businesses, or corporate workgroups. Average performance and the lack of some management and availability features prevent us from recommending this server for large deployments in large companies or even in small satellite offices that are centrally managed.

The NetFrame 3500 balances inexpensive entry costs and expandability. The base price of the NetFrame 3500 is $2,000 with no operating system, 128M bytes of RAM, redundant power supplies and an 18G-byte SCSI hard drive. The server can be expanded to up to 4G bytes of RAM and 10 hard drives, making it a future-proof investment.

Features

Our server was shipped to us with more than the base configuration — it came with two 1.33-GHz Pentium III processors with 256K bytes of Level 2 cache and 2G bytes of RAM. We loaded Windows 2000 Server on one partition configured on an 18G-byte hard drive. Microsoft Win 2000 and Win 2000 Advanced Server, and Linux are the operating systems currently supported by MicronPC.

The remaining three 18G-byte hard drives on our test server were split into two RAID 0 partitions. The four hard drives were loaded into a five-slot hot-swappable drive cage connected to a single-channel PCI RAID controller. The RAID controller is one Ultra3 MegaRAID Express 500 with 64M bytes of cache. The RAID card can be configured for RAID 0, 1, 5 and 0+1.

Performance

The NetFrame 3500 only showed a slightly better than average overall performance. After testing the file, CPU and network subsystems, the CPU performance was within 90% of the performance of the fastest two-processor servers we have tested. Network and file performances were about 60% and 65% of the best network and file servers we have tested.

Availability

NetFrame 3500 has two redundant, load-balancing power supplies that come standard with the server. Both power supplies are fed with one power cable instead of having a separate power cable connected to both power supplies.

The server is protected if one power supply fails, but with one power cable, there is no way to have redundant power sources. MicronPC says it plans to migrate to a two-cable solution soon.

The RAID controller can be configured for RAID 1 or 5 to give varying degrees of hard-disk fault tolerance.

The availability features are limited, but should be sufficient for noncritical small-business applications. We would like to see a hot-swappable PCI, redundant power cable and a built-in failover network interface card.

Serviceability

The chassis is a large tower configuration with six PCI slots (two are 64-bit, 66-MHz, and four are 32-bit, 33-MHz), and room for two five-slot hard-drive cages (ours came with one drive cage). The case can be opened without tools for easy entry to the internal components, which were easy to remove and replace. The server isn't as well-designed as some others we've seen, but it is possible to service the components without much trouble in a small-office environment.

Manageability

The NetFrame 3500 comes with an installation CD that eases the job of installing the operating system with all the necessary drivers. It also comes bundled with Intel Server Control, which lets you remotely monitor and manage the server out of band — even when the unit is powered off. The server also comes with hooks to manage the server from popular enterprise management platforms such as Tivoli, Hewlett-Packard OpenView and Computer Associates Unicenter. These features are definitely useful, but there is no easy way to manage a large number of servers from one location. The NetFrame 3500 has adequate mechanisms to manage a small number of servers in a small to midsize business, but managing a large number of NetFrame 3500 servers would be difficult. We would like to see a configuration management platform to manage the configuration of

Net Results

NetFrame 3500

3.64 RATING

Company: MicronPC, (888) 224-4247, www.micronpc.com **Cost:** $7,500; base price of $2,000. **Pros:** Low base price; highly expandable. **Cons:** Limited performance; sparse management features.

What's the score?	NetFrame 3500
Performance 40%	3.6
Features 30%	4
Manageability 20%	3
Serviceability 10%	4
TOTAL SCORE	3.64

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring Key: 5:** Exceptional showing in this category. Defines the standard of excellence. **4:** Very good showing. Although there may be room for improvement, this product was much better than the average. **3:** Average showing in this category. Product was neither especially good nor exceptionally bad. **2:** Below average. Lacked some features or lower performance than other products or than expected. **1:** Consistently subpar, or lacking features being reviewed.

NetworkWorld Review

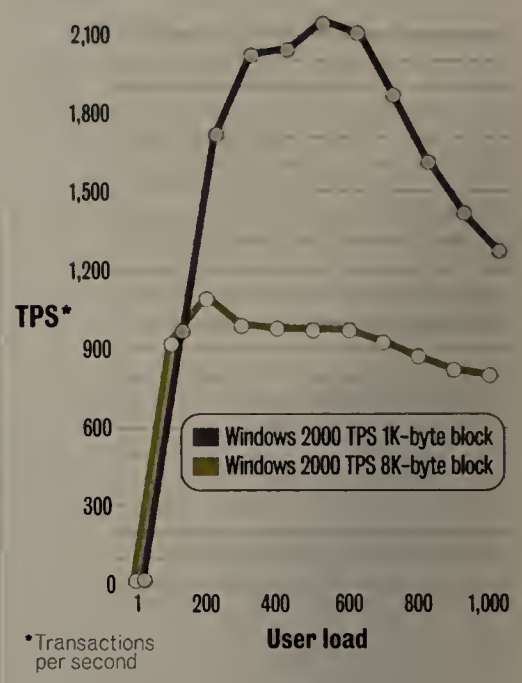
large numbers of these servers, and a similar proprietary operations management platform for monitoring the status of large numbers of these servers in case the installation doesn't have an enterprise-management solution.

Conclusion

With its great entry price and room for expansion, the NetFrame 3500 would be a good investment for smaller installations where management and high availability are not the highest priority. Its average performance, feature set and management options make it not well suited for large enterprise installations.

Performance data

Large files, random transaction type, read/write.



Bass, a senior technical staff member at CNL and co-author of McGraw Hill's Building Cisco Multilayer Swtiched Networks, *designs and leads the execution of the test suites. He can be reached at john_bass@ncsu.edu. Piyush Raju assisted with testing.*

Server testing is performed at North Carolina State University's Centennial Networking Lab (CNL) in Raleigh, N.C. CNL tests network equipment and network-attached devices for interoperability and performance.

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Global Test Alliance

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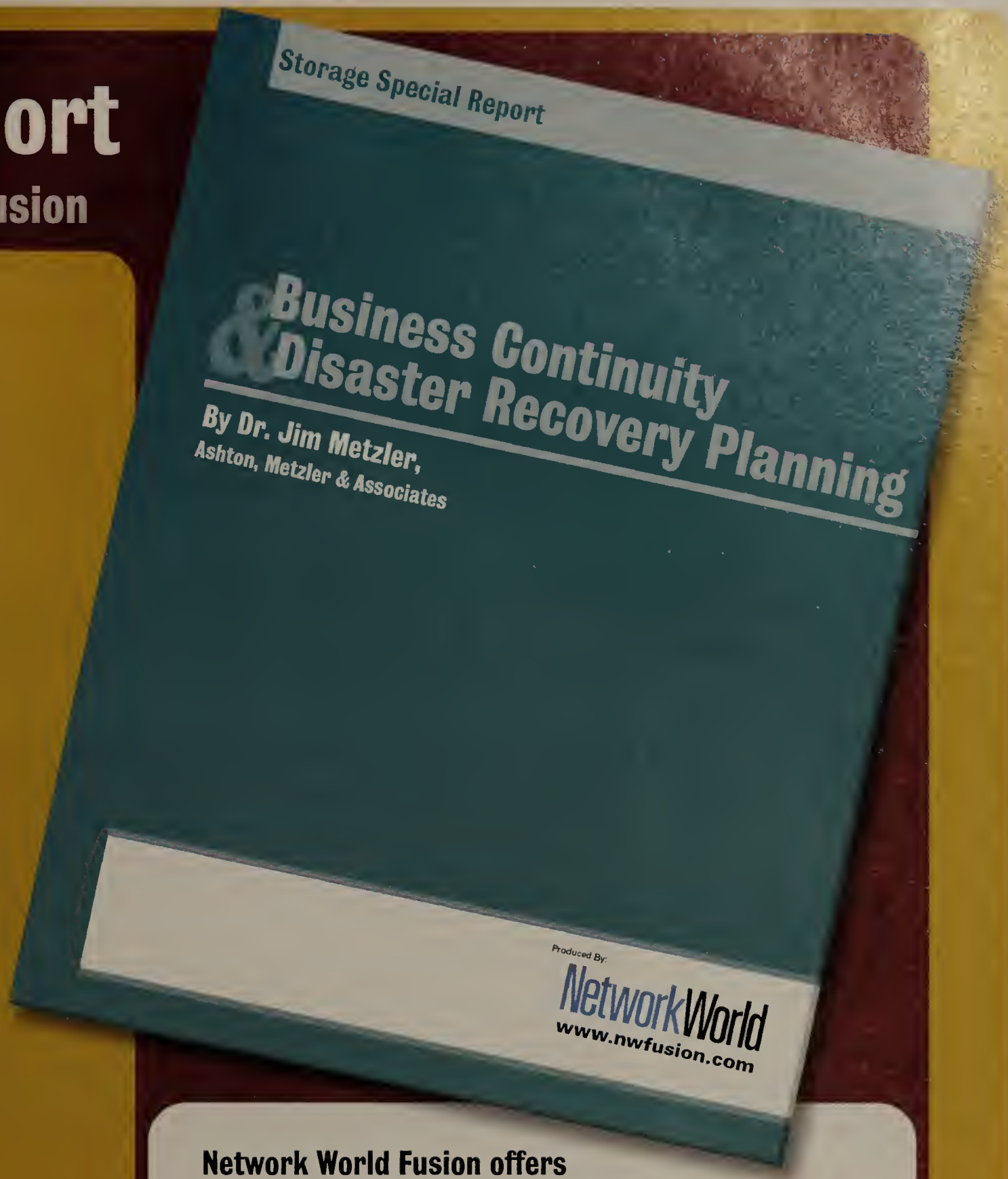
Special Report

From Network World Fusion

Network IT Executives continue to significantly increase their spending on Business Continuity and Disaster Recovery Planning. As a result of the September 11 events, Network IT Executives now realize that their procedures for data protection, backup and restoration are not as bulletproof as they once thought.

In this latest SPECIAL REPORT – exclusively from Network World Fusion – Dr. Jim Metzler of Ashton, Metzler & Associates discusses techniques on how to proactively implement Business Continuity and Disaster Recovery Planning. This SPECIAL REPORT emphasizes both the tactical and strategic considerations necessary for data and infrastructure protection. Take advantage of this free offer from Network World Fusion and secure your copy of the SPECIAL REPORT Business Continuity and Disaster Recovery Planning in PDF format today.

Dr. Jim Metzler has assisted tens of vendors to refine their product strategies, multiple service providers to deploy technologies and services, and helped over a hundred enterprises evolve their network infrastructure. Jim's current interests include Business Continuity, Outsourcing, Voice over IP, IP-Based VPNs, as well as tariff analysis. Jim can be reached at jim@ashtonmetzler.com.



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Automation nation

Automated management software can be helpful in freeing up staff time, but users must be careful in choosing which technical chores to trust to an application.

■ BY DENISE DUBIE

The IT team at Harlan Bakeries used to get into work really early, and it wasn't just to get first dibs on the fresh-baked bagels.

"I estimate we were spending three hours each morning just collecting data from PCs," says Thomas Wagenhauser, IT director at the Avon, Ind., baked-goods distributor.

It took a few hours for a systems specialist from the four-person department to gather statistics from the 150 PCs on the network. She did this by manually polling the PCs using Web-based reporting from Lotus Notes or, in most cases, walking to each server to retrieve the statistics. Then it took about 30 minutes to input the bandwidth usage, Internet usage and virus software data into a spreadsheet, and another 30 minutes for the systems specialist to make sense of it.

Wagenhauser decided that time would be better used elsewhere. "It was just too much time to take out of our systems support specialist's day," he says.

Harlan Bakeries built its own application to automatically poll every PC, populate the spreadsheet and notify the staff of problems. Implementing the new application so that it could pull data from the 150 PCs in the network took about two hours. Now with these daily tasks automated, Wagenhauser's staff members can use their time to provide technical support and work on Internet development projects.

While the decision to automate desktop management was pretty clear-cut in Wagenhauser's case, industry experts say IT executives should take their time in deciding if it's best for their networks.

"They have to choose the situations to automate well, or it may actually cause more problems and more work for them," says Audrey Rasmussen, an analyst with Enterprise Management Associates. "It's not a panacea. They have got to work at it and be ready to invest the time automation takes."

Several vendors, such as Computer Associates, Tivoli Systems and Marimba, sell software that automates IT work such as software distribution, change control and asset management. Moreover, many IT professionals write their own applications to automate small chores at their companies.

As for commercial products, in most cases, network managers administer the software from a central management console and define what the software must do. Once configured, the software will communicate with network devices to complete the scheduled jobs. The programs often can automatically generate reports, verifying that the job was completed and if any exceptions were found.

However, network managers remain leery of tools claiming to do the work and have the intelligence of an IT staffer.

Rasmussen says many off-the-shelf software products can require a lot of configuration to get the automation a specific network manager needs. And even then, the software might introduce some security risks by "kicking off actions" without the administrators' knowledge. That's why users should only designate repetitive or mundane IT tasks for automation, such as rebooting a server after it reaches a certain threshold or collecting standard data.

Wagenhauser is comfortable automating information collection, but isn't ready to unleash automated management software on the rest of the network. "Some of the software out there causes security concerns, and we won't automate any process that could potentially open our network to risks," he says.

Mission-critical applications or network equipment that touches external devices or networks, such as Web or application servers, may not be great candidates for automation because of the potential of opening a hole to the outside world.

Whether you build your own automated management tool or use a packaged application, Rasmussen recommends testing it before going live on the network. She suggests using a phased approach and starting with a job such as software licensing compliance and version control.

"A lot of vendors have automation built in, but many users have a hard time trusting the software to do what they would be normally doing," Rasmussen says. "There can be a lack of visibility into each step of the automated process, and IT people are not comfortable not knowing what's happening at all times."

Keith Johnson, superintendent of IT for the Halton District School Board in Ontario uses CA's Unicenter modules to automate repetitive tasks such as asset management and remote software delivery.

With the software configured to watch for missed thresholds, Johnson has alerts sent to staff members before a problem happens.

"My main goal is to assist the end user, so I try to automate some things that will help my staff see the process and problems faster," Johnson says. "But I'm also careful not to remove the people portion of IT support."

Software automation is a delicate balance, according to Johnson, who says repetitive tasks should be invisible to end users. Johnson follows a few guidelines to help him determine which tasks to automate. He determines how often the job needs to be done, the number of people who would benefit from the automation and how common the issue is. If something happens a lot, affects many users and isn't unique, then the IT function most likely can be automated. Anything isolated or unique or infrequent — no matter how tedious — is not a good candidate for automation, he says.

"Sometimes people automate things because it's cool to get the software to do it for you, but they're not really thinking about it," Johnson says. "You have to really think: Are you going to spend more staff time or money on an application to automate something? Really, what's the point, then?" ■

The deployment debate

Use these factors to flag a good candidate for automated management.

1. **Frequency:** Look for IT jobs that must be performed daily or even hourly, such as collecting bandwidth and hard-drive usage data from desktop PCs.
2. **Simplicity:** The fewer steps involved in the process, the better. Basic tasks such as polling a switch port to check availability are well-suited to automation.
3. **Redundancy:** Focus on tasks that require the same steps to be performed over and over, such as repeatedly pinging a server.
4. **Security:** Zero in on jobs that don't involve external applications, such as distributing antivirus software to local desktops.
5. **Personality:** Confine automation to jobs that don't require interaction with end users, such as checking software licenses and versions on PCs.

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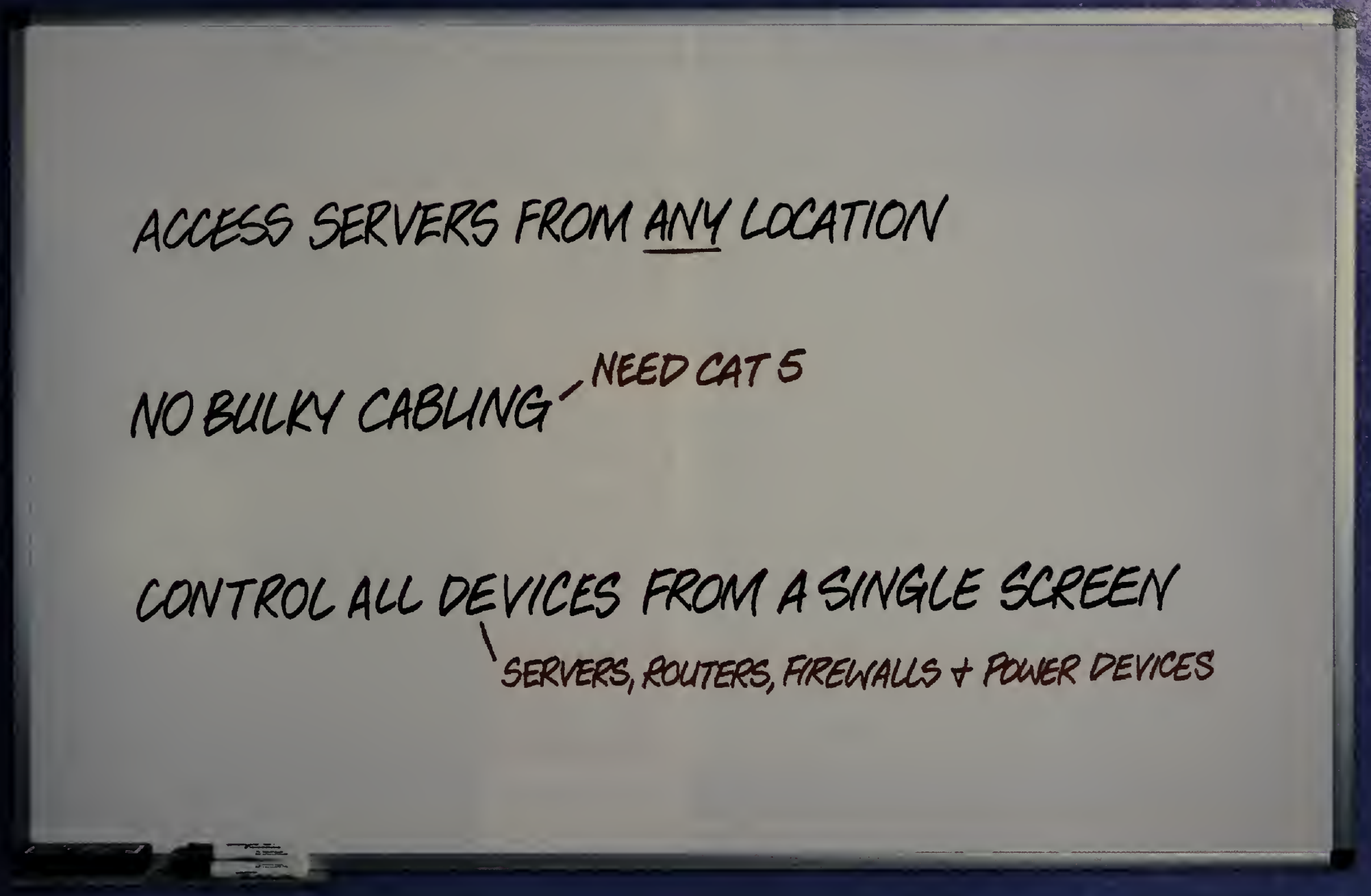

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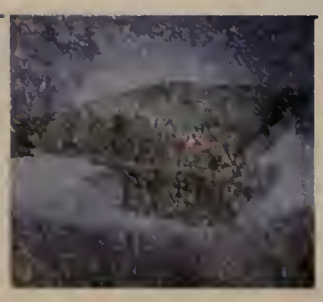

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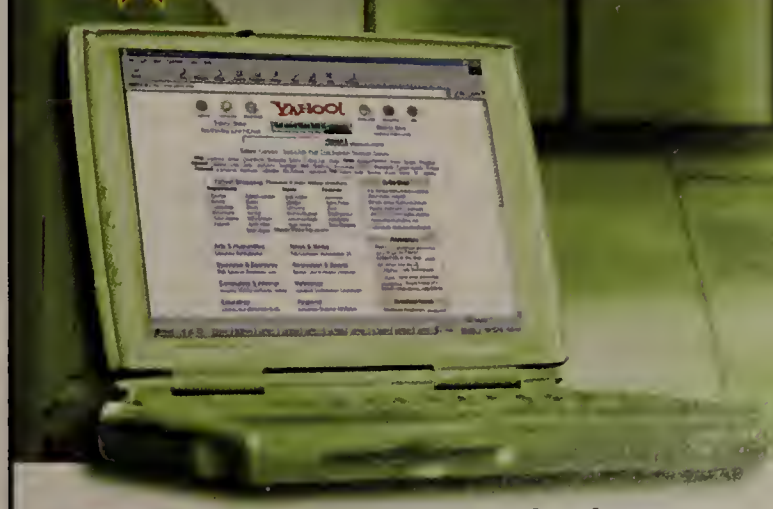

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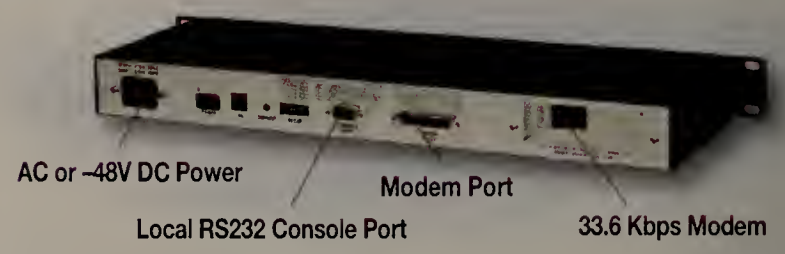

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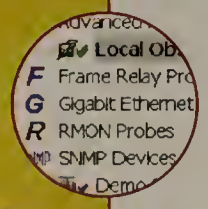

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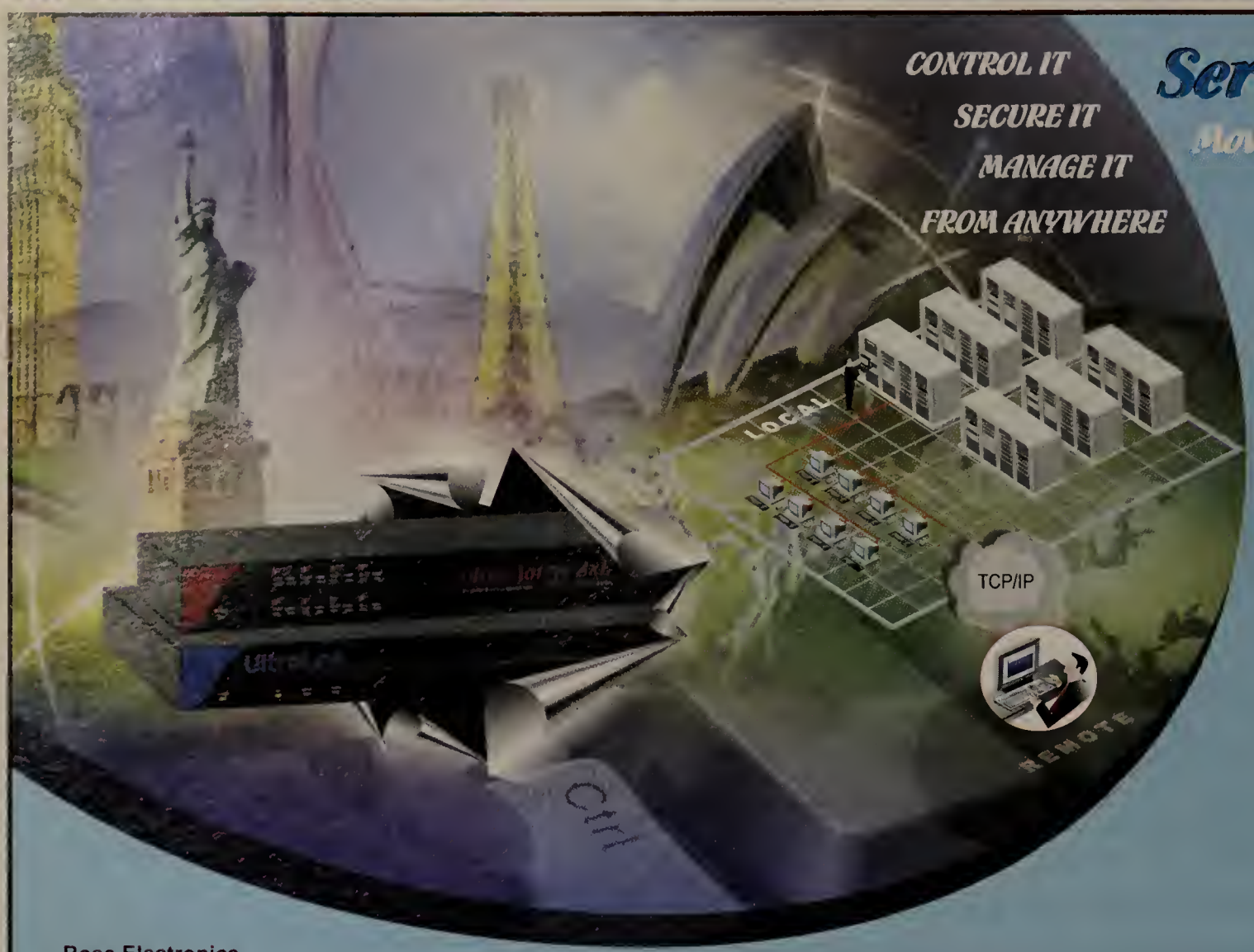

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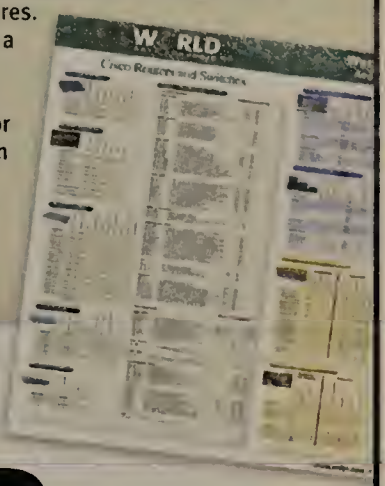

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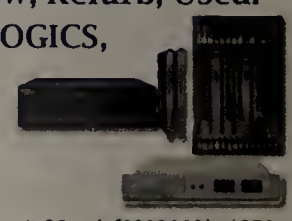

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DIRECTOR OF TECHNOLOGY-Interior Construction Company seeks Director of Technology with the following responsibilities: Oversee a network of 100 workstations, 15 servers & a tech. staff of 2 programmer analysts & 5 network technicians; design & build construction information system & integrate w/existing legacy accounting system; integrate existing construction technology with AIA standard processes to streamline the work processes. Successful candidate will have a Bachelor's degree in Computer Science or Civil Engineering, & 1 y exp. in job duties or 1 yr. exp. as Civil Engineer. Experience in DB programming, Drywall technologies & processes & NT networks a must. Mail resume to Component Assembly Systems, 620 Fifth Ave., Pelham, NY 10803, Attn: John Rapaport.

Neoris Logistics, Inc, specializing in E-Logistics & Software has the following opening in Sunrise, Florida:

Software Engineer: Plan/develop/test/document computer programs; module design/integration/user interface/code & detect logic errors. B.Sc/equivalent in Elec Eng/rel field w/rel exp. Com. Salary. Resume only: HR, 13798 NW 4th St., Ste 300, Sunrise, FL 33325.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Technical Analyst. Research, evaluate, implement and coordinate changes to large complex computer systems/applications. Requirements: Bachelor's degree* in computer science, math, business computer systems or related field plus 5 years of experience in systems development, including programming. Experience with PeopleSoft in a UNIX environment and Informix also required. Senior Systems Programmer. Devise procedures to solve complex systems and applications problems. Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems programming. Experience with UNIX, C and logistics code development also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes (indicating which position you are applying for) to Christin Decker, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Dublin Manufacturing Co. seeking F/T expd. Manager of Product Support to research, design, and developing of computer software systems, in conjunction with hardware product development. Analyze software requirements to determine feasibility of design within time and cost constraints. Consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements of overall system. Formulate and design software system, using scientific analysis and mathematical models to predict and measure outcome and consequences of design. Bachelor's degree in Computer Science, competitive salary. Fax resume to Alison (561) 995-6027.

Advanced Member of Tech. Staff-Research & develop complex computer solutions for large businesses. Build systems using one or more of math models, advanced data reduction & interpretation algorithms, object-oriented prgmming, client/server architecture. Req. MS Comp. Sci, Info. Sys. any field of Engg, Math, Stats, Physical Sciences or other related field or equiv combo of educ & work exp; PLUS 1 yr wrk exp. in job offered. Member of Technical Staff-Research & develop computer solutions of low to moderate complexity for large businesses. Build systems using object-oriented prgming, &/or client/server architecture. Req BS Comp Sci, Info Sys, and field of Engg, Math, Stats, Physical Sciences, or other related field or equiv combo of educ & wrk exp; PLUS 1 yr exp. in job offered or related occup.
Resume to HR, Vistaar Technologies, Inc., 200 Lanidex Plaza, Parsippany, NJ 07054.

Sr. Software Engineer wanted by NJ based Co for job loc throughout the US. Bachelor's degree in Comp. Sci., Technology, Engg. 5 yrs. of s/ware exp. & proficiency with AS/400 environment, coding and developing applications using RPG/400, DB2/400 and web based applications using JAVA and JSP. Respond to: Softek Information Services, 655 Amboy Ave., D-Wing, 2nd fl., Woodbridge, NJ 07095. (Ref. GG 8209). No phone calls.

Programmer wanted by health-care industry software developer in Pasadena, CA. Will work with team of developers in writing JAVA code & testing in a number of environments including Windows NT/2000, Linux, etc. Bachelors in Engineering, Scientific or Computer field required. Send resume to Hamid Amjadi of Prime Clinical Systems at 3675 E. Huntington Dr., Ste. A, Pasadena, CA 91107.

Software Engineer in CA: Develop mass computer storage management software using C, Oracle, Sun Solaris & PL/SOL; deploy application software to Windows NT & HP Unix; consult vendors. Extensive travel. Req MS in engineering, computer science or related plus 2 yrs work exp. Send resume to DeLeLuz Technologies, Inc., 4340 Scotts Valley Dr., Ste. D, Scotts Valley, CA 95066.

Sr. Softwere Engineer wanted by Media Mgmt Co in Manh. Lead dvlpmt of tech erchitecture for global syst; dvlp appl source code & doc; plan & schedule projs; leed jr dvlpmt staff. BS in Comp Sci or Engr & 1yr exp in job offd req. Respond to: KM/HR Dept, PO Bx 4241, GCS, NY, NY 10163.

SAP Project Manager - Miami, FL; sought by Global Logistics/ Freight Fwdg Co. Req'd to design & implement global SAP/R3 projects in Latin America; Develop IT sytms with H/W infrastructure, enhence sytms & operating efficiency. Must have Bach Deg in Systems or Comp. Engg & 2 yrs exp either in job off'd or as S/W Engr or S/W Dvlper. Must be exp'd in SAP R/3 & must demonstrate ability to work globally on installations in mainframe & NT eviron. Req'd to trevel to LATAM once mthly. Send resume to IT Mgr, Panalpine, Inc., 3505 NW 107th Ave., Miami, FL 33178.

Senior Software Developer. Develop & maintain Marketing Automation/Campaign Mgmt s/w. Code base programming duties involving: Java, Windows, UNIX, OO, C/C++, Visual Basic, ActiveX, CORBA, RMI, TopLink, Oracle, SOL Server, & DB2. 40 hrs/wk. Location: Raleigh, NC. (Note: no relocation assistance.) Req: BS, Comp. Sci. or related, & 5 yrs comp. s/w programming exp. Requirements may be met by equivalent based on education & experience. All resumes must incl. Soc. Sec. #. If not a U.S. citizen or permanent resident, specify current visa status. Send resume to: Jobs@ybsolutions.com., and refer to job code SRSD1.

Technical Specialist-Scripting wanted by Internet Strategy Consultants co. in White Plains, NY to dsgn, dvlp, code & maintain Internet based s/ware applic using Javascript, iExpert & HTML. Test, troubleshoot & enhance system s/ware applics. Must have Masters in Math, Comp Sci or closely related & 1 yr exp. Respond to HR Dept, ProAct Technologies Corp, 120 Bloomingdale Rd, 3rd Fl, White Plains, NY 10605.

Database Administrator and Developer sought by internet payments company in San Francisco, CA. Responsible for data modeling, database architecture, table and resource monitoring, data validation, account and performance management, backup end recovery and security alternatives.Requires Bachelor's in computer science, math or engineering; 4 yrs related experience as an Oracle DBA; working knowledge of UNIX end developing object oriented Enterprise Java applications and related security technologies. Respond by resume to Norm Barnett, Achex, Inc., 6200 S. Quebec St., Suite 2000W, Greenwood Village, CO 80111.

Programmer Analyst
The Lambents Group, Inc. seeks a Programmer Analyst in our Frankfort, KY loc. Position involves analysis, programming, design, testing, implementation end development of application and system. Involves use of technologies including Foxpro 2.6/Visual Foxpro 6.0, Vis Basic 5/6.0, ADO, RDO, Crystal Reports, Rbase and main frame. Must hold a Masters degree in Comp. Sci. or related field & 1 yr relevant experience. Applicants send résumé to Lambents Group, 1425 Jefferson Rd., Ste 18, Rochester, NY 14623.

Web Developer. Develop and write computer programs for Web development projects. Tools include HTML stds., web-authoring tools, JAVA or JavaScript, interactive apps. of web-based technology, and graphics-related s/ware. Competitive salary. Bachelor degree in Computer Graphic Design, or sim. field, req'd, as is 6 mos. of exp. in a web development position. Will accept a grad. level degree in listed field of study in lieu of prior exp. Resumes to Kimberly Miller, Dir. of H.R., Rose-Hulman Institute of Technology, Job #2470.01, 5500 Wabash Avenue,Terre Haute, IN 47803.

Programmer/Analysts needed. Object Solutions, Inc. has senior level positions available for qualified candidates possessing BS or equiv. and/or relevant work experience. Work with 3 of the following: BEA-Tuxedo, BEA-Weblogic, I Planet, Oracle and OS Kernel. Mail resume, references & transcripts to: Object Solutions, Inc., Attn: HR, 3025 Harbor Lane, #312, Plymouth, MN 55447-5119.

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Thomson Financial Inc. seeks a Database Administrator (Boston, MA) to provide comprehensive DB admin. services to implement Oracle & Sybase DBs for Sun Solaris/HP-UX & NT OS; support development for JDBS & SOLJ; & use WebDB for production support & devel. Min. requirements: Master's degree or equiv. in Computer Sci., any Engineering area or related field, + 5 years of exper. as DB Administrator working in Oracle & Sun Solaris envir.; exper. must incl. 3 yrs of JDBS, SOLJ & WebDB (aka Oracle Portal) in the Sybase/HP-UX/NT envir. Pls respond to: Nicole White, HR, Thomson Financial, 22 Thomson Place, Boston, MA 02210.

Release Manager sought by internet payments company located in San Francisco, CA. Responsible for configuration and build management of an expanding suite of software payment products using PVCS.Requires Bachelor's in computer science or related field; 2 yrs. exp. as release manager; working knowledge of PVCS, UNIX shell scripting and web-based software development. Respond by resume to Norm Barnett, Achex, Inc., 6200 S. Ouebec St., Suite 2000W, Greenwood Village, CO 80111.

SOFTWARE DEVELOPER to design, develop, analyze and implement business application software systems on AS/400, Windows and UNIX in Access, SQL or DB2/400 databases using RPG, SOL server, Oracle and C++; management support, data conversion and develop special tools for auditing data recovery, Require: Eight years experience in the job offered or any experience providing skills in described duties. Competitive salary and benefits, 40 hours week, 8:30am to 5:30pm, M-F. Apply with resume to: Corporate Human Resource Manager, PRG- Schultz International, Inc., 2300 Windy Ridge Parkway, Suite 100 North, Atlanta, GA 30339-8426

Engineering Programmer (Houston, TX): Covert mechanical engineering formulations to Computer Numerical Controlled (CNC) programs to manufacture oil field equipment. 1yr. Related exp. Contact: Lan of TNN Manufacturing, Inc. at 8330 West Little York, Houston, TX 77040; (713) 849-0062 (T); Email: tien@tnnmanufacturing.com.

Systems Engineer: Research, design, and develop software systems. Perform AppWorx/ Unix/NT/Oracle administration. Integrate Oracle Applications, Banner, Retek, Peoplesoft, SAP and related ERP systems and applications. Develop Unix Shell, and Oracle PL/SQL scripts. Develop systems interfaces. Configure/integrate/implement ERP systems. Must have MS or equivalent in Comp. Sciences, MIS or closely related field. Will consider BS and five yrs exp. in lieu of MS. Job in Charleston, WV and other locations. $70,000/ year. Send resume to HR, U.S. Professionals, LLC, 200 Association Dr., Charleston WV 25311. Fax (888) 250-5888. E-mail: jobs@uscorp.com

Software Engineer: Research, design & develop software systems using Visual Age, WebSphere Appln Server, Servlets, EJB, XML, Rational Rose, Oracle, ADSO, IDMS, IMS, JCL, Hiperstation, Viasoft, DB2, MS Visio & related tools. Perform functional/ business rqrmnt analysis. Customize/enhance/configure/Integrate software systems. Develop testing procedures & perform testing. Must have BS or eqvlnt in Comp. Sci, Math or closely related field and 4 yrs exp in software design & development. Job in Chicago & other locations. Multiple positions. Competitve Salary. Apply to HR, Pixel Information Technology Corp, 3300 W. 159th St. #206, Markham, IL 60426. FAX: 708-225-7763.

Adventsoft Technologies Inc., located in Richardson, Texas is seeking Software Engineers end Business Systems Analysts. Requires MS/BS or equivalent and/or relevant work experience. Further details posted at www.adventsoft.com.

System Support Specialist wanted for Mesquite, TX telecommunications Co. Perform systm architecture, admin, back-ups & troubleshooting. Install, configure & maintain Sun enterprise h/ware, midrange servers & Veritas & Netscape networks. Disaster recovery & shell prgmg Solaris, Win NT/2000 & HP-UX envrmnts. Req: B.Sc in Comp Sci, Electrical Engg or closely related & 2 yr exp. Send resume to: HR Dept, Tyco Electronics Corp, 3000 Skyline Drive, Mesquite, TX 75149. Fax: 972-284-2055

Lead Systems Analyst: Worldwide business applications advisory role for Sr. Mgmt/Staff/Clients; analyze viability of emerging tech. appls. for bus/risks/costs; oversee quality control of system function and design. Clt training/ conversion; IBM mainframe, Mantis SOL, CICS, COBOL. Competitive salary. Bachelors in Comp Sc./Info. Tech w/rel/exp. Resume to H. Farell, HR Mgr. Carlson Wagonlit Travel, P.O. Box 59159, Minneapolis, MN 55459.

Systems Analyst; Greenville, SC: Perform high level systems analysis, design & requirements. Coordinate the development of information systems & communication to develop workable systems detailed to user's needs. Act as liaison with various county offices, municipalities, staff & outside consultants in the planning, implementation & maintenance of computer systems & enhancement. Train personnel on usage of systems & applications. 40 hrs per wk; 8 a.m.- 5 p.m. Bachelor's degree or equivalent in Information Systems or Computer Science & 2 yrs exp. in the position offered or in related systems analysis position. 2 yrs exp. must include experience in Cognos "Powerhouse" programming language, law enforcement software or local government systems, and AS400 and RPG. Alternatively, the employer will accept a qualified applicant with 4 yrs. exp. in the in the position offered or in related systems analysis position. 4 yrs exp. must include exp. in Cognos "Powerhouse" programming language, law enforcement software or local government systems, and AS400 platform. Send resume to Dale Rice, County of Greenville, 301 University Ridge, Greenville, SC 29601.

Digeo seeks Lead S/W Architect for Palo Alto, CA office. DESC: Arch, dsgn, & impl. highly scalable data distrib. sys, apps, & middle ware data access & comm. layers for trans. of dig. TV brdcst. & multimedia datacast util. C/C++, XML, RDBMS Linux/Unix, & Win. Ensure secure trans. of data from head unit to set top boxes via hybrid fiber coaxial netwks util. TCP/IP, HTTP, FTP, multicast, MPEG-2 datacast, & gen. cryptography like digital sig, DRM, & SSL. REO: BS in CS, Math, or EE + 5 yrs exp. dsgn. & dev. netwk. apps. util. C/C++, TCP/IP on Unix, & Win. In add., 2 yrs exp. dsgn, dev, & impl. highly scalable secure data distrib. sys. util. internet arch. & protocols, TCP/IP, HTTP(s), FTP, Multicast, XML, DRM Sys. & Cryptography. Prem. sal + bns & benes. Pls. reply to HR, Job # DI-102, 8815-122nd AVE NE, Kirkland, WA 98033.

SOFTWARE ENGINEER to provide on-site consultancy in design, development, customization and maintenance of e-commerce web-enabled applications software using .Net, Csharp, ASP, ADO, ActiveX, COM/DCOM, XML, VB, Oracle and related technologies; provide systems software support on Windows NT, SOL Server and AS/400. Require: Bachelor (or equivalent) in Computer Science or Information Systems and three years experience in the job offered or any experience providing skill in described duties. 40% travel required to client sites within the United States. Salary: $64,500 per year, 9 am to 5:30pm, M-F, 40- hour/Week. Mail resume to: President, K2 Technologies, Inc., 2107 Franklin Drive, Papillion, NE 68133.

S/Ware Engineers sought by on-line brokerage firm in Manh to dsgn, dvlp, implmnt, test & support s/ware & customized applics for complex fin'l data analysis using Talarian, FX Options, JDeveloper, Loadrunner tools, Java JDK, JDBC, AWT, SWING, C++, C, Unix Shell prgmg, PL/SOL, Oracle, Smart Sockets, Visual Cafe, Optimize It, Smarteam Version Control, WinRunner, J Unit & J Menter. Dvlp & enhance fin'l product for FX Option trading system. Dvlp internet applics for MS based & Unix platforms. Improve & dvlp fin'l workflow models, review defect reports, maintain production s/ware, debug defects, enhance fin'l s/wares, modify & analyze production codes, test & direct fin'l s/ware testing procedures. Bach in Comp Sci, Math or Engg reqd. Exp reqd. Respond to ICor, J. Bolduc, HRG #3, 500 5th Ave, Ste 320, NY, NY 10110.

Software Engineer - Develop, customize, and implement CAE, PDM (Product Data Management) and PKM (product Knowledge Management) software packages to be used by engineers and manufacturers. Duties include auditing customer's engineering process, ascertaining requirements in software systems, developing specifications, writing code, testing results, delivering final products, and providing technical support. Mainly use COBOL, WorkManager, Visuel C++, eMatrix, COM/DCOM, and other commonly used tools/platforms. Reqs: Bachelor or equivalent foreign degree in Computer Science or Computer Engineering and 5 yrs exp as a Software Engineer, Programmer Analyst, Computer Programmer, Software Consultant, CAE Development Engineer, or Technical Lead. Must have 6 mths exp. using et least 3 of the tools/pletforms specified in the job duties. $64,714.00/yr, 40 hrs/wk, 8a-5p, M-F. Mail resume to Colorado Department of Labor and Employment, Employment Programs, ATTN: Jim Shimada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117, and refer to reference number CO5021303. Application is by resume only.

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Apply to: STG, Int'l Ltd., 3340 Peachtree Road, Suite #1800, Atlanta, GA 30326.E-mail: recruiter@stgil.com

Programmer Analysts needed: Analyze software requirements; Research design and develop computer software. Work with 3 of the following: VB, Oracle, MS Access, UNIX and Windows NT. Requires BS degree or equivalent and/or relevant work experience. Mail resume, transcripts, references and salary requirements to: Citicorp Credit Svcs, Inc., Attn: Beverly Hauder, Tech Center, 8333 Royal Ridge Parkway, Irving, TX 75063.

Programmer/Analyst
Analyze, design and develop integrated healthcare apps. using Visual Basic, Windows NT design of GUI, VB.NET, ASP, ASP.NET, Crystal Reports, SQL Server 7.0/2000. Prevailing wage/benefits. 2 yrs. exp. in developing healthcare apps using above tools. BS (or foreign equiv.). Send resume to HR MDS International, Inc. 11330 Lake Field Dr., Ste. 140, Duluth, GA 30097. EOE.

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Internet: dpomponi, kzinn, chorgan@nww.com
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Mid-Atlantic
Jacqui DiBianca, Regional Sales Manager
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Internet: jdibian, mhagan@nww.com
(610) 971-1530/FAX (610) 975-0837

Midwest/Maryland
Eric Danetz, Senior District Manager
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Internet: edanetz, ajacobs@nww.com
(201) 587-0090/FAX: (201) 712-9786

Central
Dan Gentile, Midwest Regional Director
Gracie Vela, Sales Assistant
Internet: dgentile, gvela@nww.com
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Internet: skupiec, mdennison, sweglage, twhitehair, aaquino@nww.com
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Lara Greenberg, Regional Sales Manager
Kim Gaffrey, District Manager
Internet: kwilde, lgreenberg, kgaffrey@nww.com
(650) 577-2700/FAX: (650) 341-6183

Southwest
Becky Bogart Randell, District Manager
Angela Norton, Sales Assistant
Internet: brandell, anorton@nww.com
(949) 250-3006/FAX: (949) 833-2857

Southeast
Don Seay, Regional Sales Manager
Caitlin Horgan, Sales Assistant
Internet: dseay, chorgan@nww.com
(404) 845-2886/FAX: (404) 250-1646

Custom Publishing
Shaun Budka, Custom Media Solutions Manager
Internet: sbudka@nww.com
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118 Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

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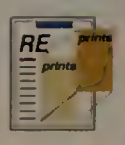

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Wireless

continued from page 1

trying to create interoperability over a wide range of [wireless] networks, so applications will work as well on the wireless side as they do on the wireline."

Mike Wehrs, director of technology and standards for Microsoft's Mobility Group, calls the effort "a tidal shift in the mobile industry."

"With the formation of the [OMA], you take in several different [industry] forums that focused on mobile technology and industry development, and consolidate these into one organization," he says.

The OMA membership includes an array of international computer, telephony and software giants: Alcatel, AOL, BEA Systems, Deutsche Telekom Mobilnet, Hewlett-Packard, Intel, IBM, Microsoft, Nokia, Novell, Oracle, Qualcomm, Sun and Verizon. Also included are corporate users such as Charles Schwab, Credit Suisse e-Business, Disney, MasterCard International, Nissan Motor and Visa International.

One notable absentee is Palm, although a company spokeswoman says Palm is considering joining.

What unites the participants is the OMA's goal of creating a set of wireless specifications and standards that will let any kind of client device access information over any network. The members are convinced that a body of such standards, coupled with interoperability testing, will make wireless services more useable

Unlike cellular voice networks, wireless data networks are limited to a particular wireless carrier. There are no cross-platform standards that let users easily take advantage of whatever wireless connection is available. A March study by Cahners In-Stat/MDR projects that corporate wireless data users will grow from just more than 10 million this year to nearly 20 million by the end of next year. Respondents said the main barriers to more widespread use of wireless data were limited geographic coverage, connection reliability and security concerns.

Several existing industry groups are merging with OMA, or becoming part of its structure of working groups. These include the Wireless Application Protocol (WAP) forum, the SyncML Initiative and the Location Interoperability Forum, along with the similarly named Open Mobile Architecture Initiative. The latter was launched last November and spearheaded by Nokia to create common standards for GSM/General Packet Radio Service (GPRS) and the emerging 3G networks.

The new effort aims more broadly than the earlier one. And that's one reason why Microsoft joined OMA, and has a seat on the board of directors. "Other than the WAP forum, Microsoft has taken a watching role [with other mobile industry groups] because they didn't have a broad enough charter to reach a meaningful goal," Wehrs says.

By contrast, the OMA has a broader scope, while being focused on creating a useable architecture for mobile services. He says OMA membership is open to all.

"Anyone can be on the board, there are no preferred members, and the intellectual property rules are the same for all members," he says.

Wehrs says OMA's work will have a "tangible benefit" for corporations. "We'll be able to say interoperability has been dealt with," he says. "Things will just work the way you expect them to work."

PROFILE: OPEN MOBILE ALLIANCE

Founded:	June 2002
Purpose:	Create and coordinate mobile standards for interoperability over different wireless networks and technologies.
What this means:	Make it easy for lots of people to use mobile data services on 2.5/3G networks.
OMA-based products due:	Early 2003
Members:	About 200 companies (including Alcatel, AOL, BEA Systems, Charles Schwabb, Intel, Microsoft, Motorola, Sun and Verizon Wireless.)
Main strength:	200 backers with a ton of money and an incentive to make wireless data and the Internet work.
Main weakness:	200 backers who compete with each other, and haven't said how much money they'll pony up for this project.

"There are people who run their business on cell phones. We need a comparable framework for wireless data. And we're close to being able to do that."

Craig Mathias
Principal, FarPoint Group

That emphasis on practicality is on target, according to FarPoint's Mathias.

"The real issue is, what do we need in order to build a wireless data network that has the reliability at least of today's cell phone network?" he says. "There are people who run their businesses on cell phones. We need a comparable framework for wireless data. And we're close to being able to do that."

Not everyone is willing or able to wait.

"We're ignoring the [international work on] standards," says Ken Blackney, director of core technology infrastructure at Drexel University in Philadelphia. "Even if [the OMA members] are standardizing, the question is 'when?' Should we wait for them?"

At Drexel, the answer is no. Blackney is overseeing creation of Drexel One Mobile, a wireless extension to the campus Web portal, called Drexel One. The new mobile elements, based in part on code written to Microsoft's .Net framework and Mobile Internet Toolkit, will give students and faculty with any kind of device or network connection access to portal-based data and applications.

"If you have a [Research In Motion] Blackberry with GoAmerica, or a Nokia smart phone with AT&T Wireless or a PocketPC with an 802.11b card, we don't care," he says. "The idea is to take selected e-services that are available on the campus wireline or 802.11b wireless LANs, and make them available to any wireless Web device."

That sounds like the result the OMA is working toward.

"We want to create an illusion of a [global] standard, without waiting for the industry," Blackney says.

OMA members are sensitive to the need for fast action. Unifying the various organizations, setting up a structure of working groups and operational criteria, and approving budgets are just some of the initial issues facing the OMA. "But the attitude is to try to resolve these issues as quickly as possible," Wehrs says. "We're giving everyone two months to do all this. There's a sense of urgency."

It's a tall order for an organization packed with so many competing interests, according to Mathias. "But the [wireless] industry is in such a state today that they're all under pressure to say, 'We just have get to this done.'"

Adding to everyone's sense of urgency is a new report from Gartner about the high costs of wireless computing. The new "total cost of ownership" figures from Gartner make plain the hidden costs of wireless computing: an average of up to $4,400 per year per user, based on a PDA with wireless modem.

Gartner defines capital costs, which makes up 60% of the total, as including network services, which have the biggest impact on this cost category, according to the study. As a result, Gartner recommends consolidating service providers, bundling services and negotiating aggressively on wireless contacts. Other costs include technical services and support; application development and management; evaluation; and deployment.

Meanwhile, the product parade continues as vendors try to make wireless networks smarter, easier and more efficient.

Last week SyChip, a fabrication-less semiconductor maker in Plano, Texas, announced a reference design for an 802.11b chipset that will fit into the Secure Digital card format — about the size of a postage stamp. Secure Digital is the designated expansion format for the upcoming Palm OS 5.0 generation of handhelds. The first 32-bit Palm operating system, which began shipping earlier this month to licensees, adds native 802.11b support to its existing support for Bluetooth, Code Division Multiple Access (CDMA), GSM and other cell-based networks.

Sirific Wireless, of Oakland, is working on a programmable radio frequency chipset that can support multiple frequencies and standards: CDMA2000, GPRS, W-CDMA, 802.11b and Bluetooth.

Until these products become available, probably next year, a growing number of vendors are offering wireless network cards that support 802.11b wireless LANs and one other wireless WAN standard, such as GPRS or GSM. These dual-mode cards let a wireless device use a high-bandwidth wireless LAN when available, and a lower-bandwidth cellular-based connection when not.

Even standard 802.11b PC cards are getting smarter. SMC Networks, a wireless LAN vendor, announced recently it will load its wireless network interface cards with software from Boingo Wireless, a Santa Monica, Calif., company that creates a back-end provisioning and billing framework that unifies about 600 separate 802.11b hotspots in airports, hotels or cafes. ■

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BackSpin Mark Gibbs

Making computers useful

I have long been a fan of artificial intelligence, and I believe that when we finally get it, it will change the world — in an evolutionary rather than revolutionary manner. AI isn't likely to appear suddenly in a machine that can carry on a conversation that passes the Turing test with flying colors.

<digression> The Turing test was proposed by the British mathematician, Alan Mathison Turing, in his 1950 paper "Computing machinery and intelligence." The University of Alberta Cognitive Science Dictionary summarized the test: "A judge has conversations [via teletype] with two systems, one human, the other a machine. The conversations can be about anything, and proceed for a set period of time [for example, an hour]. If, at the end of this time, the judge cannot distinguish the machine from the human on the basis of the conversation, then Turing argued that we would have to say that the machine was intelligent." (For more, go to www.nwfusion.com, DocFinder: 9849.) </digression>

AI will occur in steps, with computers getting smarter about what we want them to do. It will start with programs that have what we'll call a better "understanding" of tasks we're trying to achieve.

At a simple level this would mean that when a user attempts to delete all files of a certain type, the AI component would question whether this was a good idea. At a more complex level, an AI assistant would know that when you make a one-hour appointment with Bob Smith it will involve a car trip. After checking road conditions and seeing it will take four hours and the appointment is at 5 p.m., the assistant will offer to book a hotel room for you.

As that kind of assistant facility is honed, we'll see those skills applied to corporations so that user behavior that is contrary to defined standards is questioned or blocked, and workflow is enhanced and streamlined. For example, customer service could be front-ended by an AI process that intelligently answers a significant number of inquiries.

The first step on the road to useful AI might have just happened. For the past 18 years, Douglas Lenat, CEO of Cycorp (www.cyc.com), has been building a system called Cyc (pronounced "psych").

Cyc is described as "an immense multicontextual knowledgebase and an efficient inference engine. The knowledgebase is built upon a core of more than 1 million hand-entered assertions (or rules) designed to capture a large portion of what we normally consider consensus knowledge about the world. For example, Cyc knows that trees are usually outdoors, that once people die they stop buying things, and that glasses of liquid should be carried right side up."

Cycorp recently released OpenCyc, an open source version of the system, so people can extend Cyc's knowledgebase, using it royalty-free in noncommercial and commercial applications. One of its notable products is CycSecure, a product that ensures that all relevant patches have been applied to fix known vulnerabilities in networked computers.

How does Cycorp make a profit? It does consulting. It does R&D for the government and sells some products.

In a recent *Computerworld* story, Lenat said CycSecure "knows what are normal, legitimate actions — such as a user renaming one of their own files or changing their password — and what are actions taken by hackers — such as packet-sniffing and spoofing. An attack plan generally includes a large number of 'normal' steps and one or more 'hacker' steps. Cyc does not have a model of the hacker mentality ... but it does have the notion that hackers generally want to be undetected, since that motivation accounts for many steps in many plans which would otherwise be missed." (For more, go to www.nwfusion.com, DocFinder: 9850.)

This could be the start of computers giving us a lot more than answers.

Questions to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

Paul McNamara

No stopping the IM bandwagon

A piece of punditry from Ferris Research recently posited that the maturation and widespread deployment of voice over IP would reduce the number of instant messages flying hither and yon. The thinking is that fewer people will settle for text chat once the audible kind can be initiated with a click on an icon.

Interesting theory and undoubtedly true to some extent, but that type of anticipated drag on the instant-messaging bandwagon isn't deterring a parade of vendors from pushing all kinds of new instant-messaging products on large corporate networks.

Buzz used an old-fashioned telephone connection recently to talk to the folks at Omnipod, one such instant-messaging company that is based in New York. Omnipod last week released the second version of its Professional Online Desktop (POD), which is a hosted service that requires client software and provides instant messaging, file sharing and an impressive lineup of security, storage and management features. Omnipod has a software version in the works for companies that like to control their own deployments.

Omnipod says its business is being spurred by growing alarm among network executives over the unchecked spread of instant-messaging pockets that rely on consumer-oriented offerings that lack security and management features.

"We've actually seen this happen in several places where this top-level edict goes out and says, 'Cut off all instant messengers immediately ... close the ports, disable them, do not allow people to run these utilities,'" says Matt Hunt, the company's CTO. "Those policies have been met with a hue and cry both from internal users who are used to communicating via instant messaging, and — much worse — from customers, who now expect to be able to talk to their sales people and tech support."

Hue and cry is one of those reactions IT execs would rather avoid. Once they reach this realization, they are ready to buy an instant-messaging product that is designed for corporate use, Hunt says.

"That's where you start to really separate a lot of these products out: the security, the robustness, the scalability and ease of administration," he says.

POD has all that goodness and more, Omnipod assured us.

The logic seems unassailable here: If companies are going to use instant messaging — and they are — then they will need to do it right.

HP backs down (a little bit)

We can't call it a surrender, but Hewlett-Packard has definitely blinked.

Apparently swayed by a torrent of complaints, HP has altered the TV commercial that has irritated so many readers of this column ... and driven more than a few to forswear the company's products.

If you still haven't seen the ad, it ridicules men — as so many commercials and sitcoms do today — by showing a fellow searching for items off a "shopping list" that we later see is a collection of photographs printed by his wife. The original punch line: "A shopping list that won't confuse your husband."

I haven't seen the new version but am told that the "won't confuse your husband" line no longer appears. Instead, viewers are told that the helpful pictures represent a "foolproof" shopping list.

A company executive had told me two weeks ago that HP was looking for a way to "tweak" the commercial so as to lose the implication that *all* husbands need such help when shopping. Pulling the ad altogether would have been better, but let's call this a partial victory and give the company a little bit of credit for listening.

Hard to believe there's anyone left out there who hasn't weighed in on this topic ... but the address is buzz@nww.com.

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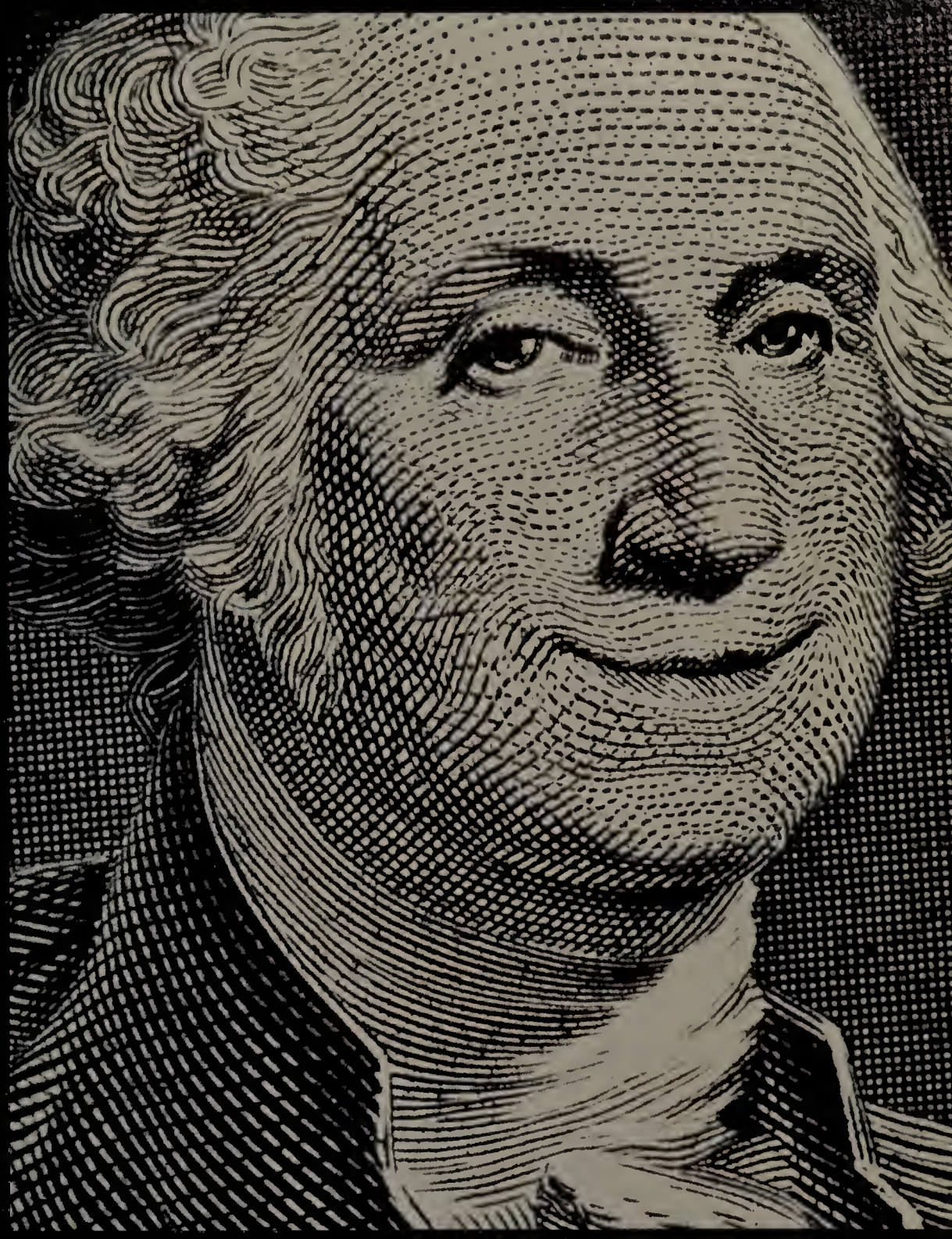

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